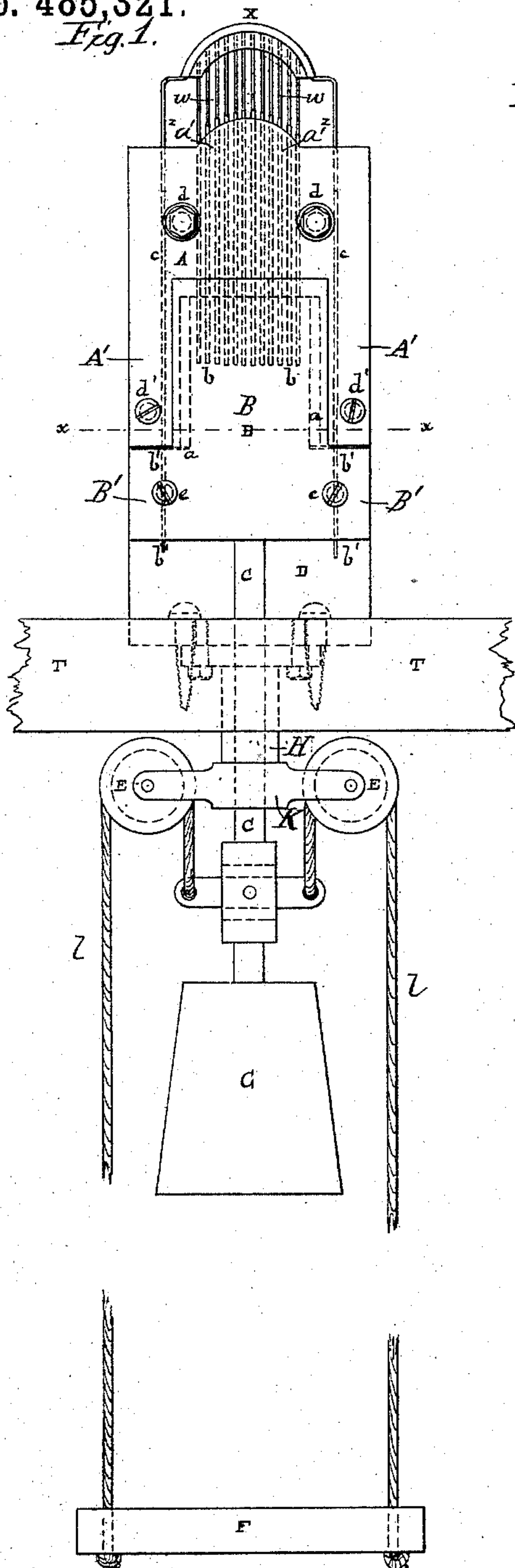


(No Model.)

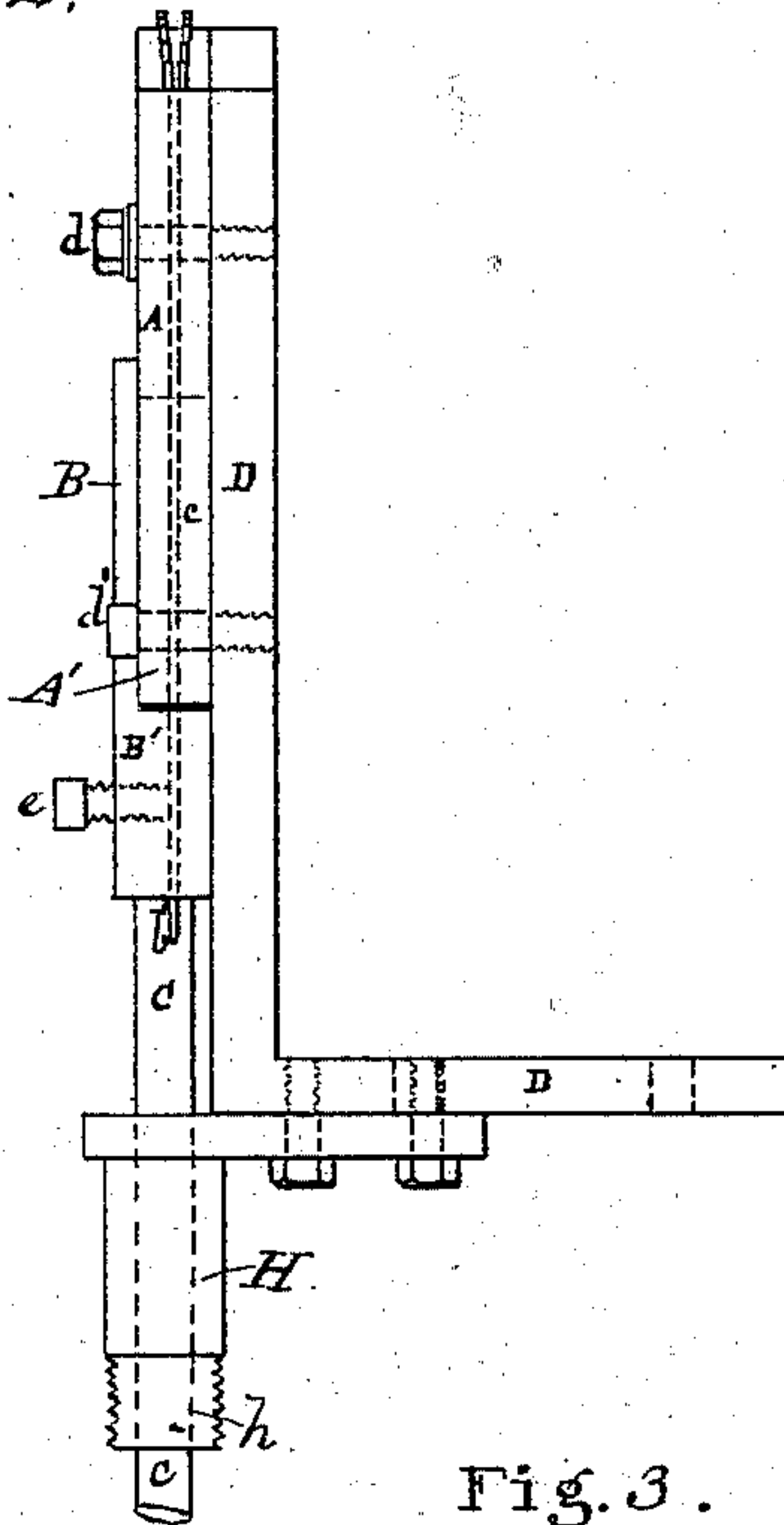
O. B. FAHNEJELM & C. DELLWIK.  
MACHINE FOR SECURING INCANDESCING BODIES FOR GAS BURNERS  
IN THEIR HOLDERS.

No. 485,321.

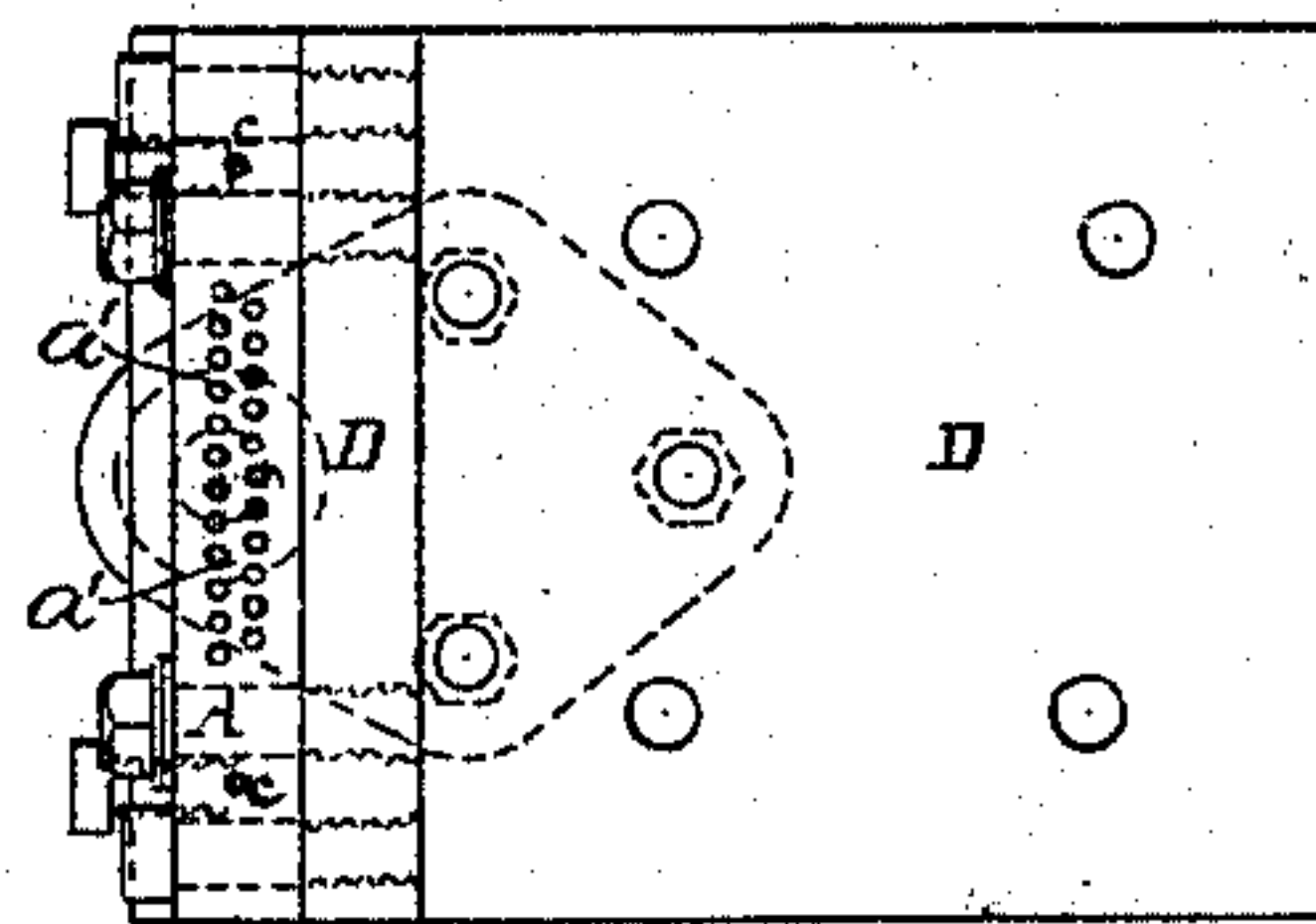
Patented Nov. 1, 1892.



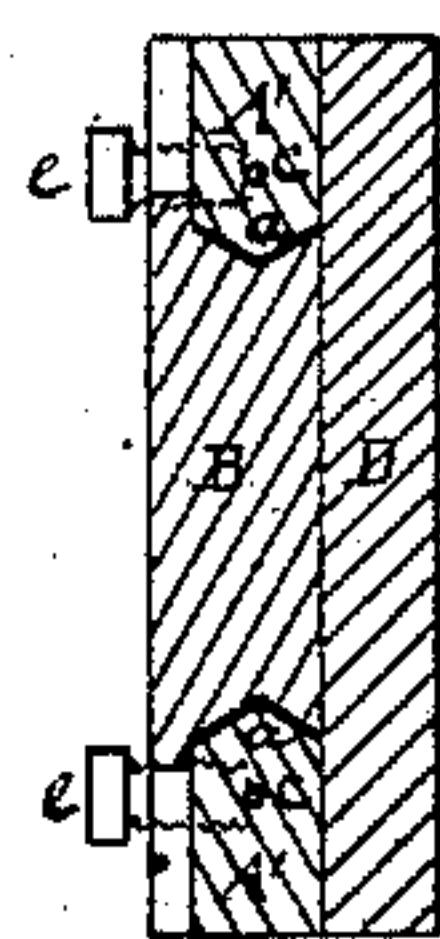
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses  
*John Jenkins Jr.*  
*Robert B. Smith*

Otto B. Fahnehjelm  
Carl Dellwik Inventors

By Their Attorney  
*W. H. Fletcher*



# UNITED STATES PATENT OFFICE.

OTTO B. FAHNEHJELM, OF STOCKHOLM, SWEDEN, AND CARL DELLWIK, OF ROGERS PARK, ILLINOIS.

MACHINE FOR SECURING INCANDESCING BODIES FOR GAS-BURNERS IN THEIR HOLDERS.

SPECIFICATION forming part of Letters Patent No. 485,321, dated November 1, 1892.

Application filed June 21, 1890. Serial No. 356,312. (No model.)

*To all whom it may concern:*

Be it known that we, OTTO B. FAHNEHJELM, of Stockholm, Sweden, and CARL DELLWIK, of Rogers Park, Cook county, State of Illinois, have invented a new and useful Improvement in Machines for Securing Incandescing Bodies for Gas-Burners in Their Holders, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to a machine by means of which attenuated and slender incandescing bodies—such as rods or needles *w*, of refractory material—may be inserted at one end in a suitable supporting frame or holder X and be uniformly arranged in one or more rows and secured therein without liability to fracture or displacement.

Figure 1 is a front elevation of my machine entire. Fig. 2 is a side elevation; Fig. 3, a plan view; and Fig. 4, a cross-section at the line *x X*, Fig. 1.

Similar letters indicate corresponding parts.

In constructing our machine we provide a fixed crown or channel piece A, having holes or channels *a'*, a movable die or plunger B, carrying the wires or rods *b b* and *b' b'*, a standard C, bearing said movable die or plunger, and a suitable frame D, on which the crown-piece A is mounted and fastened by means of screws *d d* and *d' d'*. The frame D is set on and secured to a table or other suitable support T. (Shown in Fig. 1.) We also provide suitable devices for raising and lowering the movable plunger and other details of construction, as will be hereinafter specifically described.

The incandescing gas-burner device, which is completed and perfected by means of this machine, is composed of the arched holder-frame X, the lateral supporting-wires *z*, and a row (one or more) of pendent slender rods or needles *w* of refractory material, and such device is shown in detachable connection with the top of our machine in Fig. 1. The crown or channel piece A is provided with lateral extensions A', extending down on each side of the supporting-frame D, and such extensions A' are provided at their inner edges with guideways *a a*, as shown in Fig. 4. In this crown or channel piece A is formed a series

of longitudinal holes or channels *a'*, Fig. 3, of the proper size to receive the rods or needles *w*, of incandescing material, which are to be inserted in the holder-frame X. There are also formed in this crown-piece and the lateral extensions A' thereof the holes or channels *c* for the reception of the supporting-wires *z z* of the holder-frame X. The movable die or plunger B consists of a sliding block adapted to fit in between the lateral extensions A' A' of the crown-piece and at its edges is suitably grooved to receive the guideways *a a* of such extensions. In the top of this plunger B is secured a row or series of metallic wires or rods *b b*, so arranged as to register with the longitudinal holes or channels in the crown-piece A. These wires or rods *b b* are made of a suitable size to permit them to freely slide in the holes or channels of said crown-piece. The plunger B is provided with lateral extensions B' B', which fit up against the lateral extensions A', and into such extensions are set and adjustably secured the wires or rods *b' b'*, adapted to register with and fit into the channels *c c*, and such wires are adjustably secured by set-screws *e e*, whereby they may be adjusted in a proper position for bearing upon the lower ends of the lateral supporting-wires *z z* of the burner device and forcing such wires out of the channels when the burner device is completed. The plunger B is supported upon a suitable standard C, which slides up and down through a proper guide H, secured to the base of the frame D. The guide H has a screw-threaded lower end *h*, to which is secured the yoke or cross-bar K, which carries at its outer ends the pulley E for the ropes or chains *l l*. To the lower end of the standard C is attached either directly or indirectly a weight or counterpoise G or its equivalent, and to the standard C is also attached one or more chains or ropes *l*, passing over pulleys E and connected at the other end with the treadle or stirrup F.

The method of the operation of our apparatus is as follows: When at rest, the plunger B rests upon the frame or table T, being held firmly thereto by means of the weight G and the standard C. The holes or channels in the crown-piece A are then empty. Into these holes or channels are then dropped endwise



the proper number of suitable incandescing materials. The frame X, filled at the under side of its top with a suitable plastic cement, is then set upon the crown-piece A and its wire supports  $z z$  are thrust into the holes or channels  $c c$  until the frame X is brought into firm contact with the crown-piece A. The foot of the operator is then placed upon the stirrup or treadle F, and the plunger B is then raised by means of the standard C. When the plunger B rises, it carries with it the rods  $b b$  and  $b' b'$ . The rods  $b b$  come in contact at their upper ends with the lower ends of the incandescing materials and force them into the plastic cement in the top of the frame X. At the time when the rods or wires  $b b$  have thrust the incandescing materials firmly into the plastic cement in the frame X and before any additional thrust or strain is put upon the incandescing material the upper ends of the wires or rods  $b' b'$  come in contact with the lower ends of the wires  $z z$  in the frame X and thrust the frame X, with the incandescing material properly placed and fixed in the plastic cement, therein to such a height that the frame X, thus complete, can readily be withdrawn by the hand of the operator. This is the stage of the operation shown in Fig. 1. The foot of the operator is then withdrawn from the treadle or stirrup F and the apparatus resumes the same position as at the commencement of the operation.

It will be seen that the length of the wires

$b b$  and  $b' b'$  must be so proportioned to each other and to the length of the incandescing material that the wires  $b' b'$  shall not begin to act until the wires  $b b$  have done their work and at the instant when such work is done that the wires  $b' b'$  shall relieve the wires  $b b$  from any further duty. Otherwise the fragile material composing the incandescents are likely to become fractured and the benefits of the operation entirely destroyed.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The crown-piece A, having a series of longitudinal holes or channels, in combination with the plunger B, provided with a series of corresponding rods or wires  $b b$  and  $b' b'$ , and means for raising and lowering said plunger, substantially as described.

2. The combination of the crown-piece A, with suitable holes or channels, the plunger B, with the corresponding rods or wires  $b b b'$ , the standard C, the weight G, the pulleys E E, and the treadle F, or their equivalents, substantially as described.

OTTO B. FAHNEHJELM.

CARL DELLWIK.

Witnesses as to Fahnehjelm:

NERE A. ELFWING,

KNÜT OLSEN.

Witnesses as to Dellwik:

G. D. WILSON,

P. N. WALDENSTRÖM.