

(No Model.)

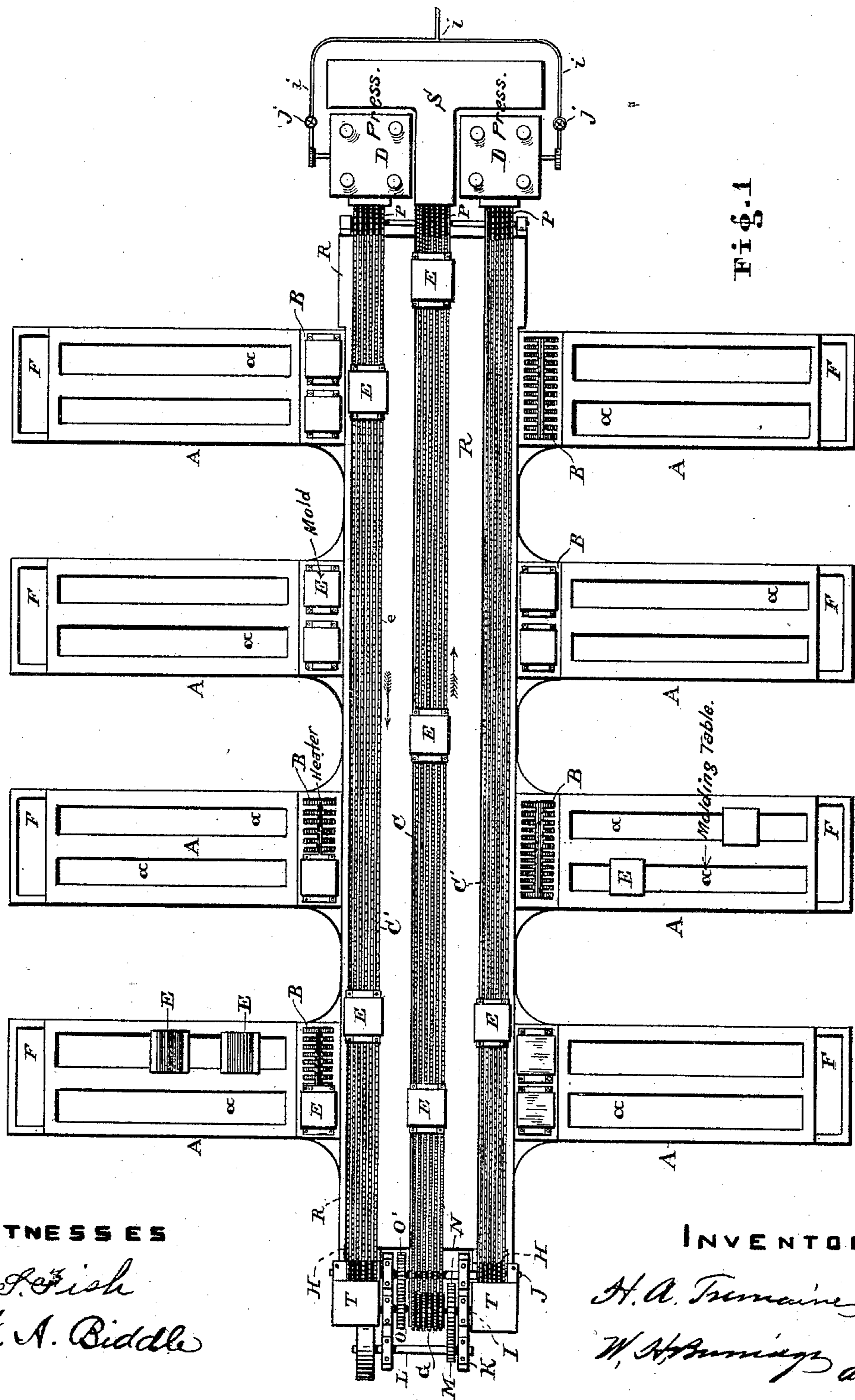
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H. A. TREMAINE.

APPARATUS FOR MANUFACTURING ELECTRIC LIGHT CARBONS.

No. 426,479.

Patented Apr. 29, 1890.



WITNESSES

L. L. Fish
W. A. Biddle

INVENTOR

H. A. Tremaine
W. H. Burdick atty.

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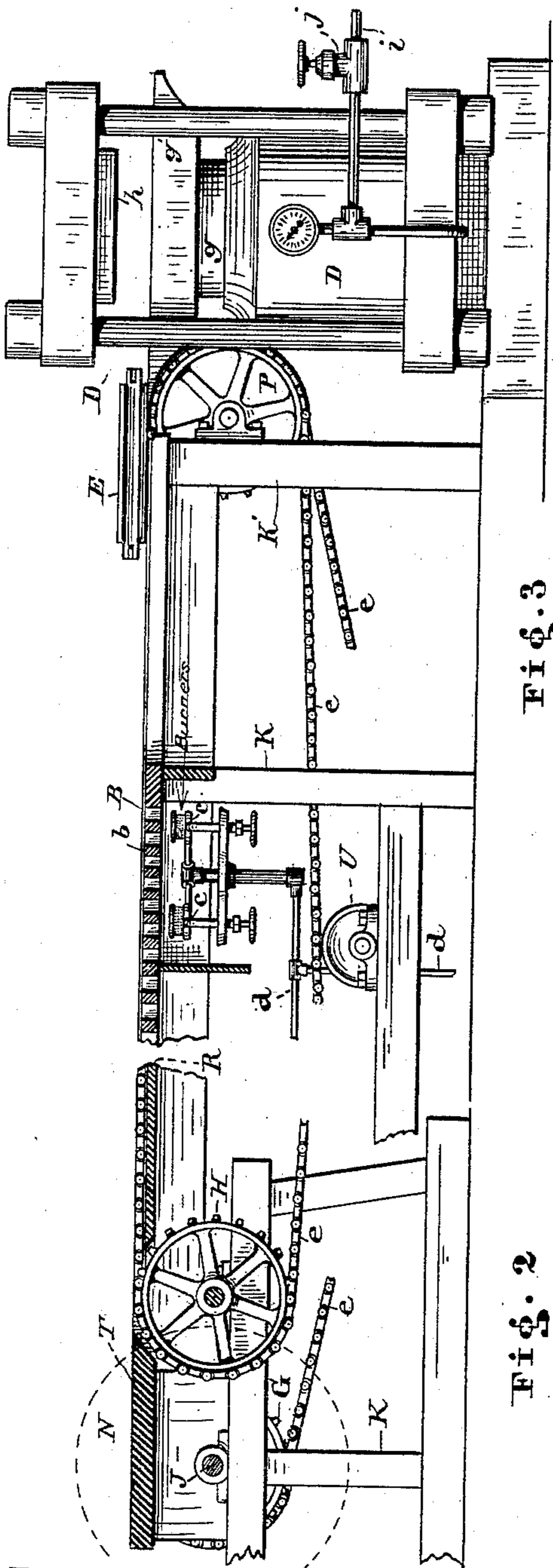


Fig. 3

Fig. 2

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J. H. Fish
W. A. Biddle

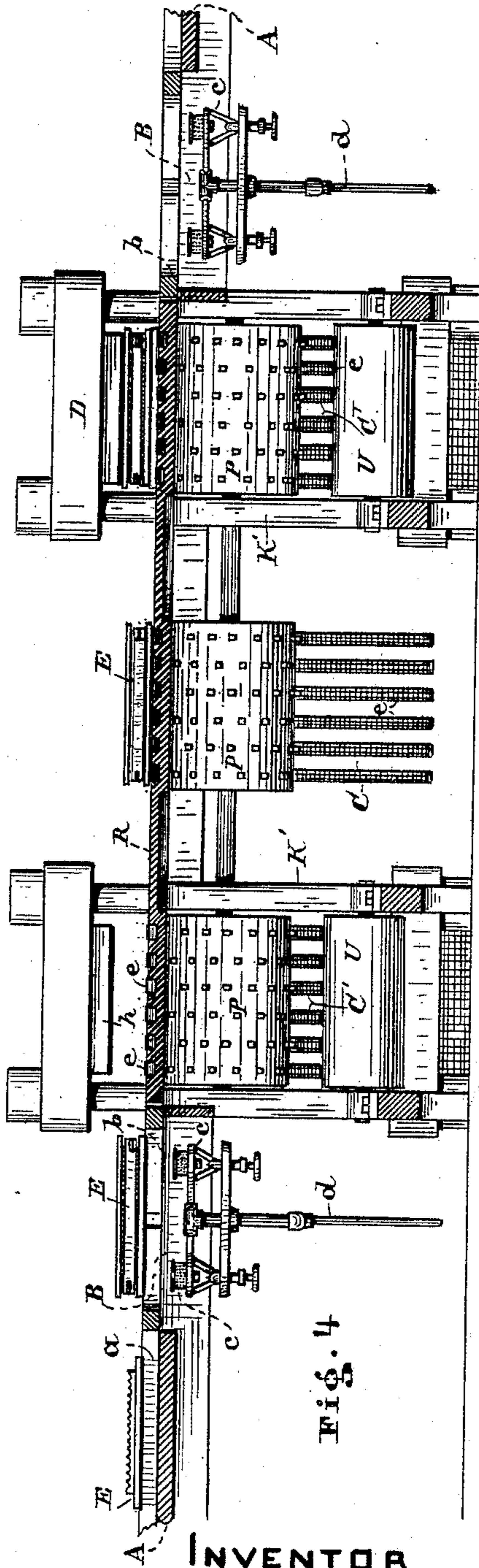


Fig. 4

INVENTOR

H. A. Tremaine
W. H. Burridge

UNITED STATES PATENT OFFICE.

HENRY A. TREMAINE, OF CLEVELAND, OHIO, ASSIGNOR TO THE STANDARD CARBON COMPANY, OF SAME PLACE.

APPARATUS FOR MANUFACTURING ELECTRIC-LIGHT CARBONS.

SPECIFICATION forming part of Letters Patent No. 426,479, dated April 29, 1890.

Application filed August 30, 1889. Serial No. 322,480. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. TREMAINE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and Improved Apparatus for Molding and Pressing Arc-Light and Battery Carbons, of which the following is a full and true specification.

The invention relates to means for facilitating the manufacture of carbons for the purpose above stated.

That the invention may be fully understood, reference will be had to the following specification and the accompanying drawings, in which—

Figure 1 represents the general arrangement of the apparatus above stated. Figs. 2, 3, and 4 are sectional and elevational detail views of the same, which will be referred to hereinafter.

Like letters refer to like parts in the drawings and specification.

As represented in Fig. 1, A indicates the molding-tables, B the heaters, C C' C' the conveyers, and D D the presses.

The molding-tables and heaters are located on each side of the conveyers, whereas the presses are at the end thereof, as shown. Said molding-tables A may be more or less in number, depending upon the dispatch with which the molds can be pressed.

The molds E are first filled with the prepared carbon material and made ready for the heaters and presses in successive order. The persons or molders for manipulating the molds are in proximity to the tables and conveyers C'. The mixture or material from which the carbons are made is placed in the receptacles F, located at the outer ends of the tables, Fig. 1, from which the material is first weighed before being put into the molds E. The depressions *a* of the tables A facilitate the handling of the molds—that is, they are thus easier lifted and the parts thereof put together, which parts may be of the ordinary construction for this purpose. On having the mold ready it is moved over to the heater B at the opposite end of the table for the purpose of heating the contents. The series of heaters are arranged at the end of the tables and in proximity with the central conveyer C, on which the molds are shifted when heated.

Said central conveyer C carries the molds within easy reach of the press-operators by whom the molds are moved for subjection to the action of the presses and returned therefrom on the outer conveyers C' C' as soon as the pressure is removed. The pressed molds on the return-conveyers C' C' are drawn in by the molders as they pass along their tables to be emptied and refilled.

The heaters B consist of a grate *b* and one or more burners *c*, which are placed underneath the same. The burners may either be supplied with gas or hydrocarbon oils in a vaporized state. In Figs. 3 and 4 are seen cross-sections of said burners. In this instance four burners are arranged under each grate. They are supplied with gases or liquid fuel through the pipe *d*, of which all connect with the main supply-pipe or are otherwise arranged. The grate extends over the width of the table and is on even plane with the surface thereof.

The conveyers C C' C' are each made up of a series of belt-links *e*, forming an endless chain belt, which is moved by sprocket wheels or pulleys, as seen in Fig. 2, which figure represents a detached section of a portion of the driving mechanism. The belts of the conveyer C are driven by the pulley G, and those of the conveyers C' C' by the pulleys H H, Figs. 1 and 2. The said pulleys are secured to the shafts I and J, which are journaled in bearings in a suitable frame-work K, upon which is also mounted the counter-shaft L, with pinion M. The pinion M drives the wheel N on the shaft I, and the wheel O on the same shaft imparts motion to the shaft J by the wheel O' of like size. By this arrangement of gearing the pulleys G and H H revolve in a reverse direction to each other—that is, if the inner conveyer moves toward the presses D, then the outer conveyers move from the latter, as indicated in the arrows in Fig. 1. The guide-pulleys P for said conveyers are all placed upon the shaft Q. Preferably the outer pulleys are secured to said shaft, whereas the inner pulley revolves loosely upon the latter. The shaft is journaled in bearings located at the side of the frame K, which frame also supports a grooved platform R, in which each link-belt is sepa-

5 rately guided, as seen in Fig. 4. The molds are carried by said chains slightly above the surface of the platform R to avoid undue frictional resistance. The inner conveyer C is contiguous to the platform S at the press side, upon which platform the molds are unloaded to be successively put under the presses, or, respectively, upon the rams *g* thereof, which are forced up by hydraulic pressure against the top plates *h*. From pumps (not shown in the drawings, as no special form is required) the pipe *i* leads the liquid to the presses, and by means of the valve *j* the pressure can at will be applied to or taken from the presses D.

10 In Fig. 3, which represents, partially, a section through a heater, an elevational view of one end of the conveying apparatus, and a press, can be seen the conforming shape of the ram-head *g'* to that of the pulleys P. By this arrangement the molds are readily carried from the presses by the conveyers C' C'.

20 In case of any oversight on the part of the molders, if a mold should be carried past the last table, then the same will be deposited upon the platform T, Figs. 1 and 2, from which it can be carried back to the tables.

30 For the belts of the conveyers C' C' guide-rollers U are arranged in connection with the frame-work K'. For the central conveyer C, however, no such provisions are made, inasmuch as it is the weight of the under side of the chains which is required to keep the upper side in straight condition while being pushed forward by the pulley G, as seen in Figs. 3 and 4, the latter figure representing a cross-section through the conveyers and heaters and a partial view of the presses.

40 In the manufacture of battery-carbons the *modus operandi* would be essentially the same, so far as the carbon mixture is concerned, and also in heating the same, conveying it to and subjecting to the press, removing it therefrom in successive operation. The difference is only in the form of the mold in which the battery carbons are formed.

45 Having described my invention, what I claim, and desire to secure by Letters Patent, is—

50 1. The combination of the molding-tables

A A, the heaters B B, conveyers C C' C', and presses D D, said tables being arranged at the sides of the conveyers, the heaters interposed between said tables and conveyers, the presses in close proximity to the ends of the return-conveyers and adjacent to the central advance conveyer, in the manner as and for the purpose set forth.

2. The combination of the molding-tables A, provided with heaters B at one end thereof, and the conveyers C C' C' intermediately passing along said heaters to carry the molds E to and from the presses D D, arranged and constructed in the manner as shown and described.

3. The combination, with the conveyers C C' C', driven in opposite direction, of the charged and prepared molds E, presses D D at one end, and the heaters at the side of said conveyers C' C', and the tables A, adjoining the heaters, in the manner as shown, and for the purpose described.

4. The combination, with the conveyers, the tables A A, extending laterally therefrom, carbon-receptacles at one end of said tables, and heaters at the opposite ends, with ways between the carbon-receptacles and heaters adapted to receive the molds, and a press B, arranged in line with the conveyers, substantially as described.

5. In combination, conveyers driven in inverse directions, heaters with molding-tables adjacent at intervals to the platform of said conveyers, and presses at one end of said conveyers, constructed and arranged substantially as and for the purpose set forth.

6. In the described apparatus, the molding-tables A, having each a carbon-receptacle F at one end and a heater at the opposite end, substantially as described.

7. In combination with the conveyers, a press D, having its forward end overlapping the line of movement of the conveyers, substantially as described.

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

HENRY A. TREMAINE.

Witnesses:

W. H. BURRIDGE,
HENRY FORD.