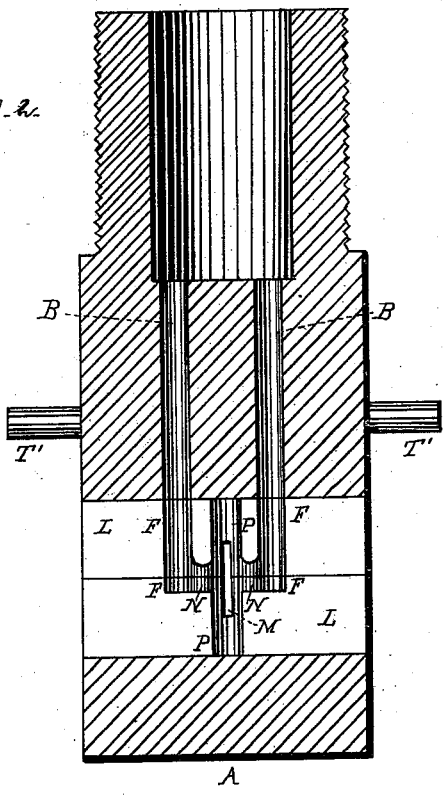
2 Sheets—Sheet 1.

J. W. HYATT & C. BURROUGHS.

Apparatus for Coating Bars or Springs with Celluloid or other Plastic Composition.

No. 204,229. **Patented May 28, 1878.**

Fig. 2.



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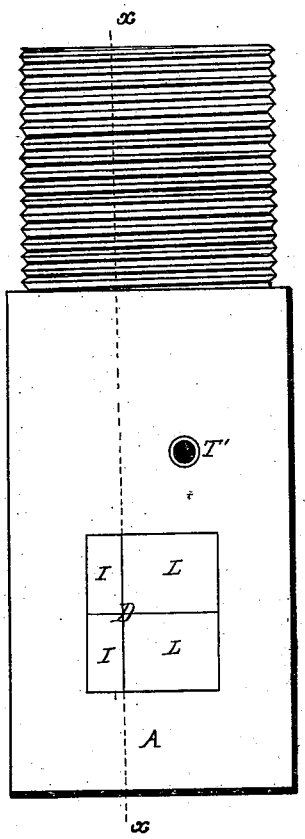

WITNESSES =
Chas. C. Gill
Alexander Pope

INVENTORS =
John W. Hyatt
and
Charles Burroughs
By Cox and Cox
their attys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

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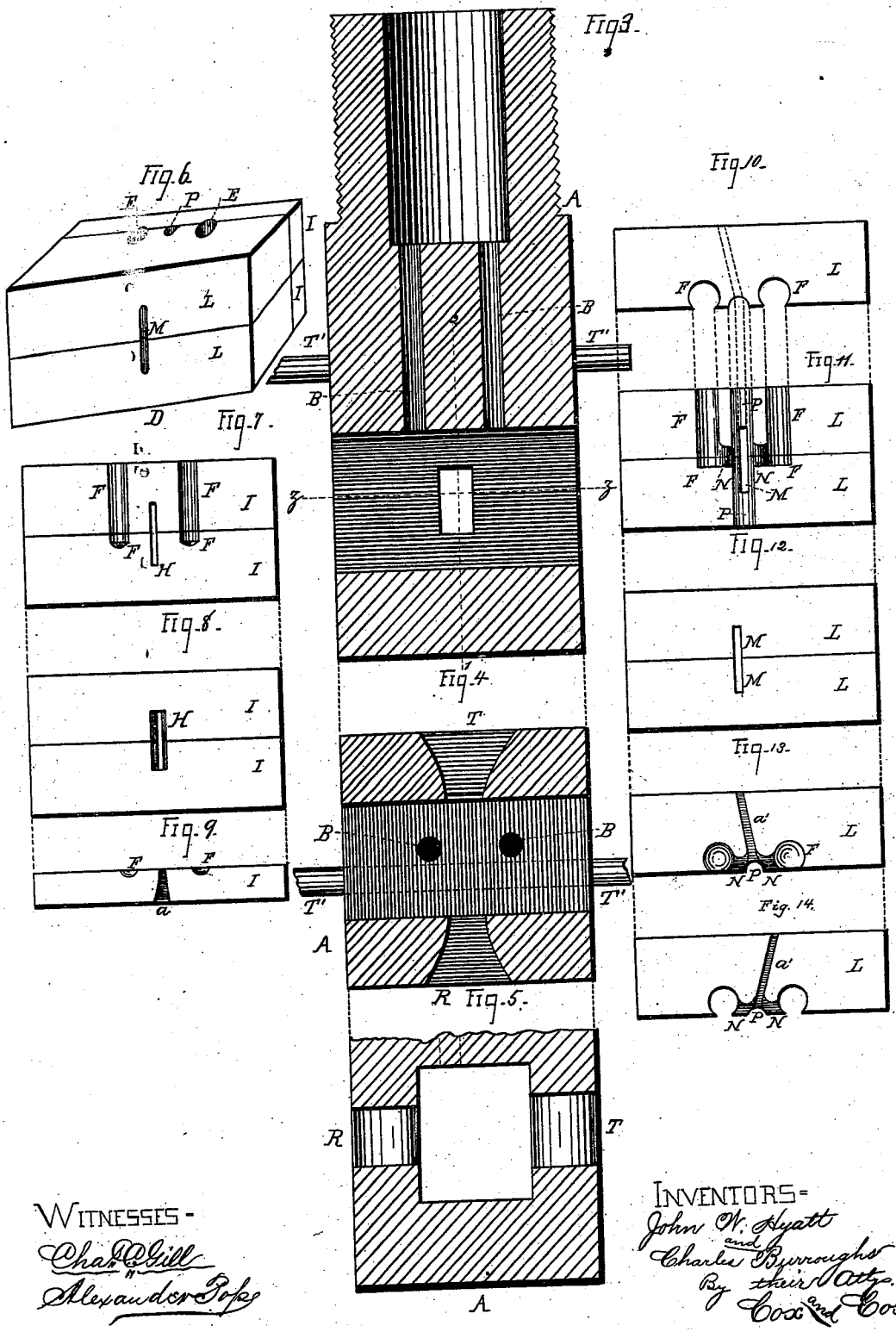

WITNESSES-
Chas. D. Gill
Alexander Bolz

INVENTORS-
John W. Hyatt
and
Charles Burroughs
By their Attys.-
Cox and Cox

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN W. HYATT AND CHARLES BURROUGHS, OF NEWARK, NEW JERSEY, ASSIGNORS TO THE CELLULOID MANUFACTURING COMPANY, OF NEW YORK, N. Y.

IMPROVEMENT IN APPARATUS FOR COATING BARS OR SPRINGS WITH CELLULOID OR OTHER PLASTIC COMPOSITION.

Specification forming part of Letters Patent No. **204,229**, dated May 28, 1878; application filed April 27, 1878.

To all whom it may concern:

Be it known that we, JOHN W. HYATT and CHARLES BURROUGHS, of the city of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Nozzles for Stuffing Bars and Springs with Plastic Composition, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to an improved nozzle for stuffing or coating bars or springs with plastic composition; and consists in a plug formed in sections, wherein are provided the parts of certain cavities and apertures, all coincidently arranged, so that when the sections are united the various cavities and apertures are formed, and when the sections are secured in place the device forms practically a solid plug. This construction is secured in a suitably-shaped aperture in the nozzle of a stuffing-machine, which nozzle is furnished with channels that connect with channels in said plug, so that when the stuffing-machine is operated the composition is forced into the cavities in the plug, through which the bar is passed, being coated or stuffed as it moves through the composition.

In the accompanying drawings, Figure 1 is a plan view of the device, showing the end of the plug. Fig. 2 is a vertical longitudinal section of same through the line *x x*. Fig. 3 is the same, with the sections of plug removed. Fig. 4 is a section on the line *z z*. Fig. 5 is a partial section on the line 1 2. Fig. 6 is a view of the sections assembled and forming the plug. Fig. 7 is a plan view of the sections I in operative relation. Fig. 8 is the reverse of Fig. 7, and Fig. 9 is an edge view of one of the sections I. Fig. 10 is an edge view of one of the sections L. Fig. 11 is a plan view of the sections L in operative relation. Fig. 12 is the reverse of Fig. 11. Figs. 13 and 14 are interior edge views of the sections L.

The nozzle A is attached, by any suitable means, to the base of the stuffing-machine, and has a channel, from which two smaller channels, B, lead toward the opposite end of the device.

In the nozzle A is provided a suitable aperture to receive the plug D, which is composed of two or more sections, being so constructed and united that, when secured in place in the aperture aforesaid, the various recesses that are provided in the said sections shall be coincidently located and the several channels, cavities, inlets, and outlets mentioned be formed. Now, these sections being properly located as to each other and secured in the aperture in the nozzle, the plug D is formed, and possesses virtually all the peculiarities of a solid plug, having an internal cavity formed of the several cavities mentioned hereinafter.

The apertures F are located coincidently in the several sections, which, when united, the apertures form the pockets E, the mouths of which are placed directly opposite the mouths of the channels B. Thus the material is received into the pockets E, whereby it is retained, and which are kept constantly full of material by the operation of the stuffing-machine.

The inlet H is formed of the two tapering cavities *a*, coincidently located in the sections I, its inner opening being situated midway between the pockets E, and of such size as to snugly conform to the transverse section of the bar to be coated. Preferably, the sections I should be made of steel or other hard metal, or the inlet lined therewith.

The outlet M is formed of the two cavities *a'*, coincidently located in the sections L, and may be straight, inclined, or curved, according to the contour of the bar to be coated. The outlet thus formed is of such size as to accurately correspond to the transverse section of the coated bar.

The metal above and below the inner opening of the outlet M is cut away coincidently in each of the sections L, so as to form the gates N, on each side of which a cavity, P, is provided to receive a portion of the material.

The stuffing-machine, provided with plastic composition, being operated, the material

flows through the nozzle, filling the pockets and the other cavities in the plug D. The bar is now passed into the inlet H, which stops the flow of the material through it and forces the composition to flow out through the outlet M. This creates a flow or current, which takes up the bar and carries it forward and out through the outlet, in which passage the upper and lower surfaces of the bar are coated with material that flows through the gates N, the edges of the bar being coated by the material in the cavities P.

It is here to be remarked that the gates N are opposite each other, as also are the cavities P and the inlet H and the outlet M.

Opposite each other on the sides of the nozzle A, and appropriately placed, are the inlet R and the outlet T, forming continuations respectively of the inlet H and the outlet M, and having their lower sides curved, if desired, to permit the admission and exit of a curved bar.

The nozzle is provided with a suitable means of keeping it heated, a steam-pipe, T′, being used in the present instance—this to preserve the material in a plastic condition pending the said operation.

By the above mechanism, coiled or straight springs, as well as bars or strips of wood or metal, or any sufficiently dense material, may be smoothly coated.

If a fin is desired upon the edge of the article, it is only necessary to deepen the cavities P and widen the outlets to correspond with the increased width of the coating.

A tag or end of the composition may readily be formed on each bar by allowing a slight interval between it and the passage of the preceding bar through the composition, since in its movement through the plug the bar will thus force a certain portion of the composition before it, and will, of course, be followed by a quantity. These portions will thus form a tag at each end of the bar.

It is obvious that the surfaces of the cavity may be so recessed or conformed as to give the coating a corrugated or indented outline in cross-section.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The plug D, composed of two or more sections, which are provided with coincident sectional cavities, which, when united, form a space to receive the coating composition, substantially as specified.

2. The plug D, in combination with the nozzle A, substantially as set forth.

3. The nozzle A, provided with an inlet having a curved mouth, substantially as specified.

4. The nozzle A, having an outlet with a curved mouth, substantially as specified.

5. Two or more sections, which, when united, form a cavity having the gates N and pockets E, substantially as set forth.

In testimony that we claim the foregoing improvement in nozzles for stuffing bars and springs with plastic composition, as above described, we have hereunto set our hands this 20th day of March, 1878.

JOHN W. HYATT,
CHARLES BURROUGHS.

Witnesses:
ABRAHAM MANNERS,
HARRY COX.