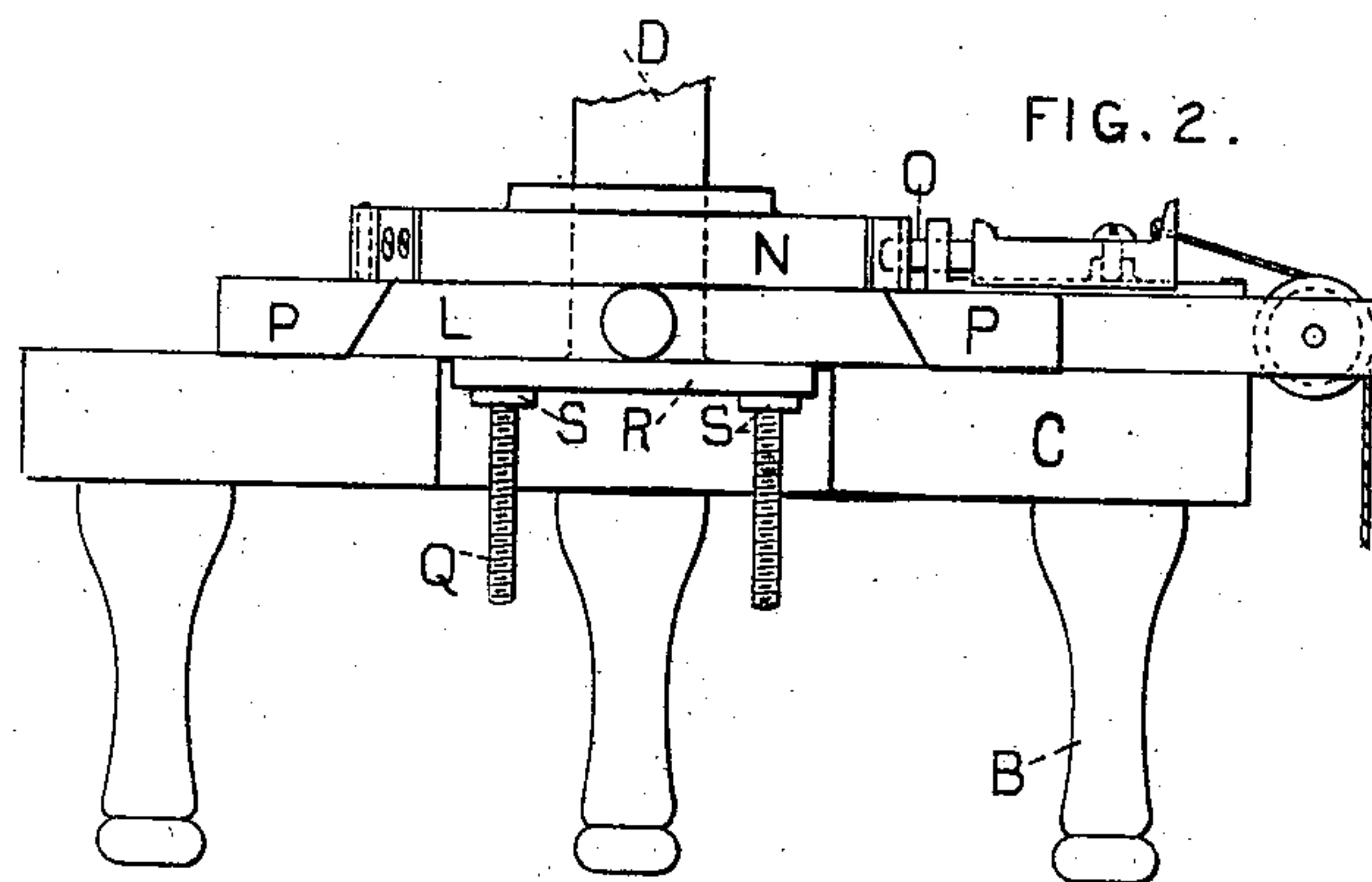
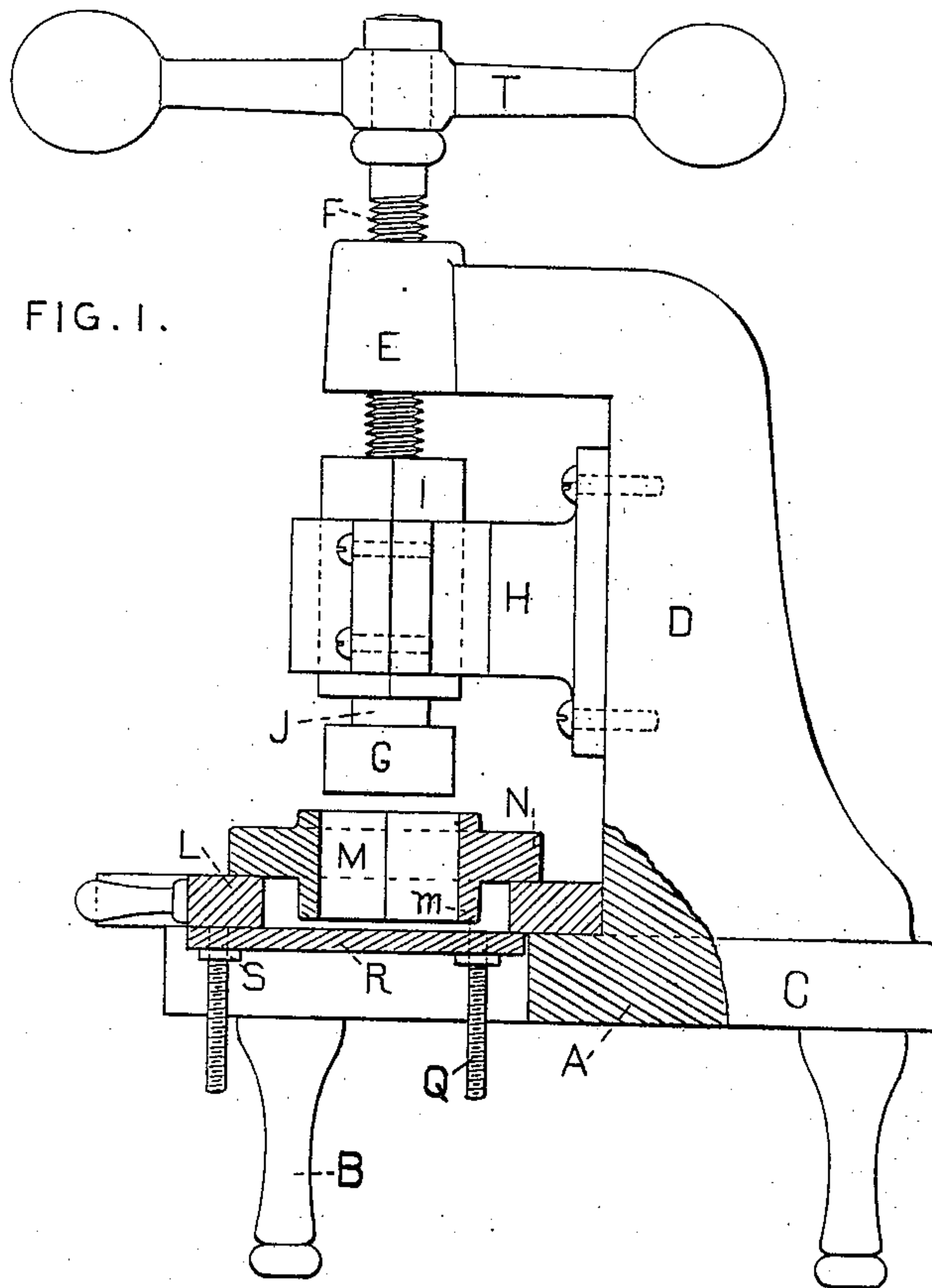


H. B. HALL & E. HINE.  
PROCESS AND APPARATUS FOR PUTTING UP CAUSTIC ALKALI.  
No. 193,330. Patented July 24, 1877.



WITNESSES  
*W. H. Hicks*  
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FIG. 3.

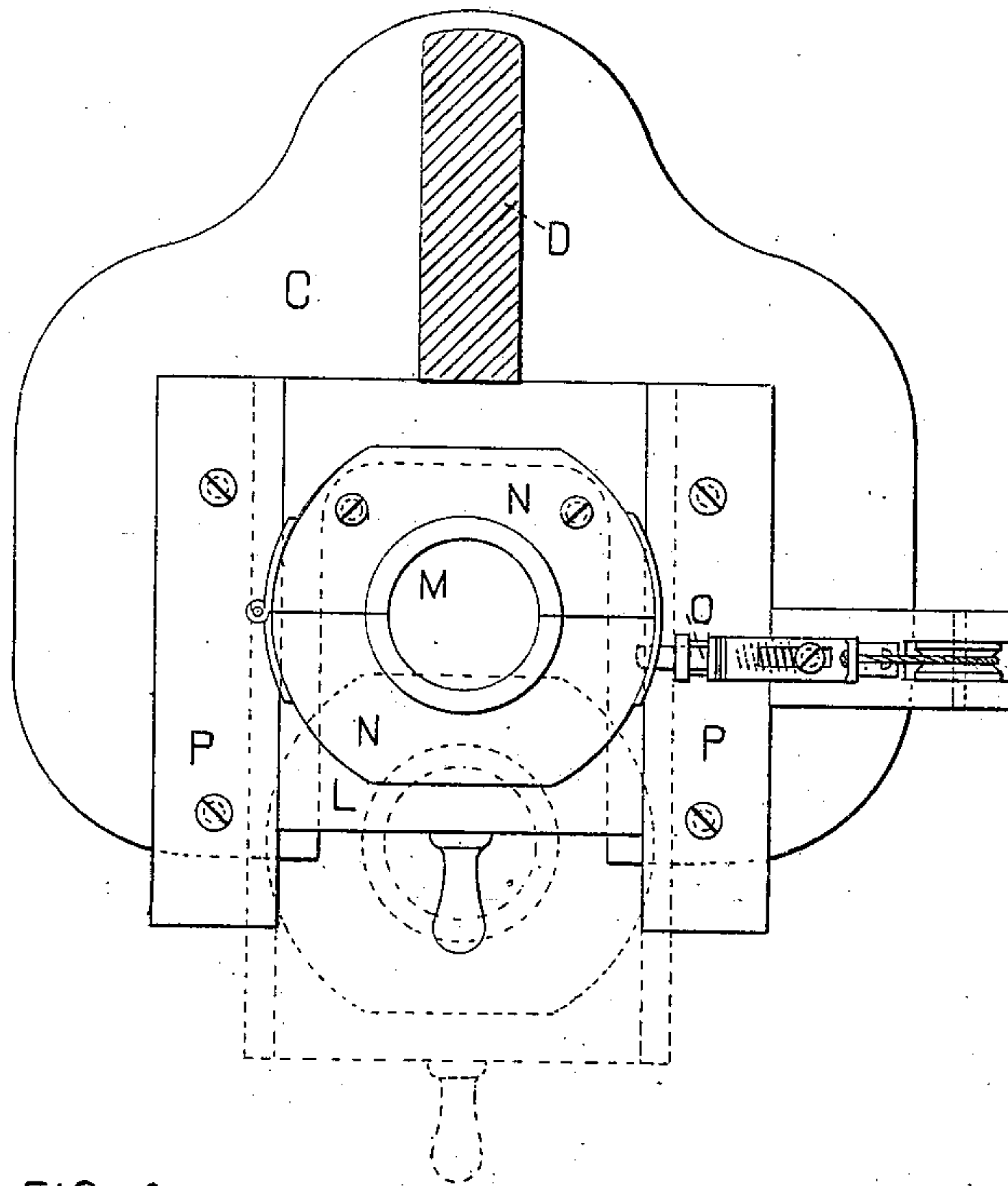


FIG. 4.

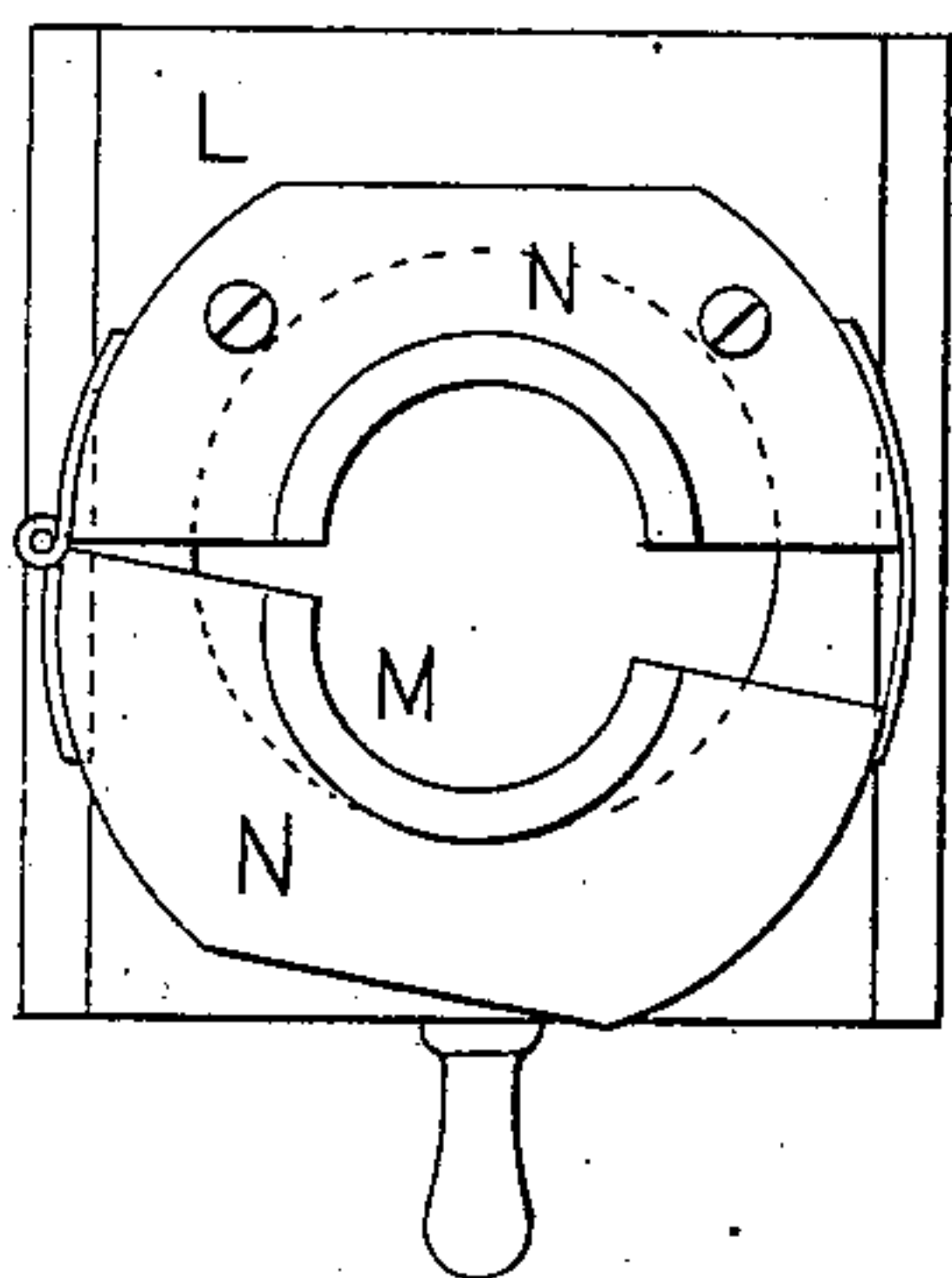
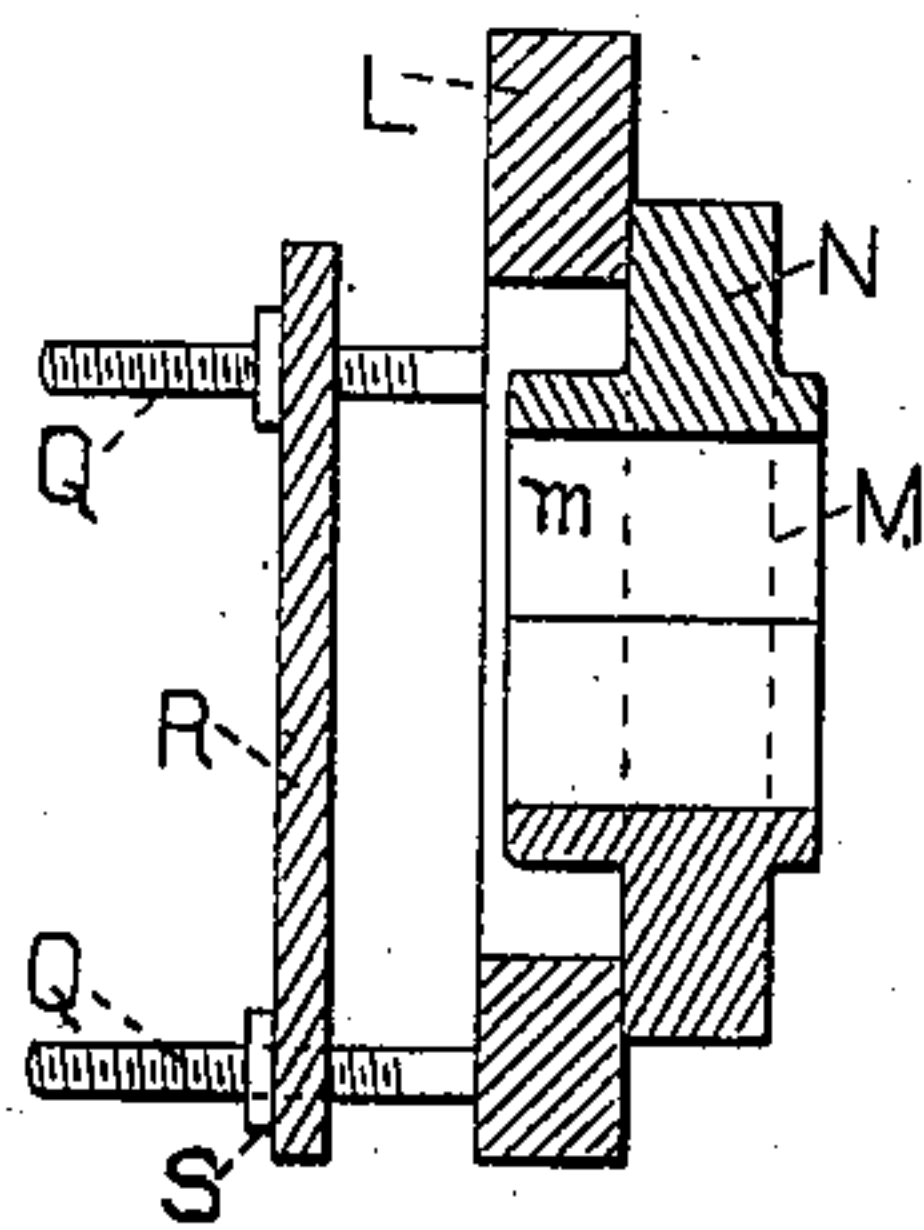


FIG. 5.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

HENRY B. HALL AND EDWARD HINE, OF NEW YORK, N. Y.

IMPROVEMENT IN PROCESSES AND APPARATUS FOR PUTTING UP CAUSTIC ALKALI.

Specification forming part of Letters Patent No. 193,330, dated July 24, 1877; application filed June 12, 1876.

*To all whom it may concern :*

Be it known that we, HENRY B. HALL and EDWARD HINE, of the city, county, and State of New York, have invented, made, and applied to use Improvements in Packing Caustic Alkali; and that the following is a full, clear, and correct description of the same, reference being had to the accompanying drawing, making part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation, partly in section, of the machine used by us to carry out our process. Fig. 2 is a front view of the table of the machine, showing the means employed to retain the clamp for the can in position. Fig. 3 is a top view of the table of the machine. Fig. 4 is a view of the clamp for holding the can to be filled in position. Fig. 5 is a view of the adjustable shelf or table upon which the can rests.

In the drawing, like parts of the machine are pointed out by the same letters of reference.

The nature of the present invention consists in a new and useful process of putting up caustic alkali, and in the construction of machinery by which the process may be successfully carried out, the object of the invention being to cheapen the putting up of caustic alkali, and to supply a purer, and, consequently, better, article of caustic alkali to the public.

To enable those skilled in the arts to make and use our invention, we will describe our process of putting up caustic alkali, as well as the machine shown in the drawings by which we propose to carry out our invention.

Instead of the mode most frequently resorted to for putting up caustic alkali, by melting and pouring it into vessels suitable to make it an article of commerce, we take the caustic alkali in a granulated or pulverized state, (pulverized or granulated by machinery suitable for such purpose,) and press it by means of either a screw or a lever into an air-tight package prepared to receive it; and, to carry out our process, we make use of a machine of which the following is a description:

A shows a frame for supporting the operative parts of the machine, supported upon the legs B. From the table C of the machine rises the standard D, in the projecting part E of which is received the screw F, by which the

plunger G is lowered and raised. Through the projecting portion H of the standard D is inserted the supporting-block I, in the lower end of which is secured the spindle J of the plunger G. The upper end of the block I is provided with the threaded opening, and with the same the screw F engages, so that as the screw is revolved either to the right or to the left, the block I is raised or lowered, carrying with it the plunger G.

Within an opening in the table C of the machine is received the clamp for receiving the can into which the caustic alkali is to be compressed. This consists of a secondary frame or table, L, provided with an opening of sufficient area to receive the lower projecting portions *m* of the divided ring or clamp M formed upon the interior of the plates of metal N secured upon the upper portion of the table L. One of the plates N is permanently attached to the table L, and the other, which is a movable plate, is hinged to the permanent plate upon one side, so that it can be moved out and away from the permanent plate to allow of the introduction of the can to be charged, and then closed around the same closely. When closed, an opening in the same is brought opposite a bolt, O, moving freely upon the upper surface of one of the side-supporting strips P, and the ring or clamp M is thus held together, and forms, as it were, after the can has been received within it and the movable plate has been closed in position upon the permanently-attached plate, a support and holding device for the can.

From the under side of the table L project the rods Q, supporting a movable table, R, the rods Q being so positioned in the table L that the movable table R shall be directly below the opening in the table L, and being provided with screw-threads a portion of their length, over which are passed nuts S, engaging with the threads, and serving to raise or lower the table R. The screw F may be provided with a weighted handle, T, by which it may be turned easily.

The process of putting up the caustic alkali may be thus described: The caustic alkali to be packed into the can is first granulated or pulverized, and is then supplied to the can through a funnel placed in the same. The can,



which is made of the same exterior diameter as the interior diameter of the ring or clamp M, is inserted in the clamp by elevating the table R upon the rods Q, so that when the can is positioned in the clamp, the top of the same shall be flush with the top of the ring or clamp, moving out from beneath the plunger G the table L, the bolt O being withdrawn from contact with the plate of metal N, opening out the movable plate of metal, and inserting the can in the space between the ring or clamp, its bottom resting upon the table R, closing the movable plate N upon and around the can, and moving back to its former position the table L, and allowing the bolt O to spring into the opening in the movable plate N, and lock and hold the same in position. The plunger G is then brought down by turning the screw F, which, in turn, engages with and operates the block I, until the requisite quantity of caustic alkali is compressed into the can or vessel. The plunger G is then elevated by reversing the movement of the screw F, the bolt O is withdrawn from its position within the opening in the movable plate N, the table L is drawn forward, and, the movable plate having been drawn away from the fixed plate, the can may be removed, and, a second can having been inserted in the clamp, the operation described above is repeated.

The clamp is made sufficiently strong to reinforce the metal of which the can is composed, and thus enable it to withstand the pressure of the plunger in compressing the caustic alkali supplied to it.

When a can larger than the usual length is to be charged, the table R may be lowered upon the rod Q by lowering the nuts S to accommodate it.

The advantages resulting from thus putting up or packing caustic alkali are numerous.

When the alkali is granulated, and in this granular state is packed directly into air-tight

cans, it contains much less water than when subjected to melting before packing, and retains the strength it had in its original drum. The pressure to which the granular alkali is subjected reduces it to a compact and homogeneous mass, and enables the maximum quantity to be introduced into the packages. Moreover, the labor and expense of melting it are done away with, which is an expense of considerable amount. The danger to the operator from handling it in the molten state is avoided; and, finally, while compressed into as small a compass as it would occupy if poured, the cost of packing is reduced, and a better article results to the consumers of it.

Having now set forth our invention, we desire it to be understood that the pulverizing or granulating of caustic alkali, being well known to the trade, constitutes no part of our invention; nor do we claim anything described in United States Patent No. 110,189, dated December 20, 1870; but

What we claim as new is—

1. The hereinbefore-described process of putting up caustic alkali, which consists in compressing the same, in a dry granular condition, into air-tight packages, substantially as specified, whereby the alkali will be practically free from water, and will retain its original strength, as set forth.

2. In a machine for compressing caustic alkali into cans, the combination of the stationary and movable plates N, and movable table R and table L, with a suitable frame-work, A, for supporting the screw F, block I, and plunger G, constructed and operating substantially as and for the purposes set forth.

HENRY B. HALL.  
EDWARD HINE.

In presence of—

A. SIDNEY DOANE,  
W. H. HICKS.