

B. B. Hotchkiss

Forging Metal.

Patented Jan. 1, 1861.

31,064

Fig. 1.

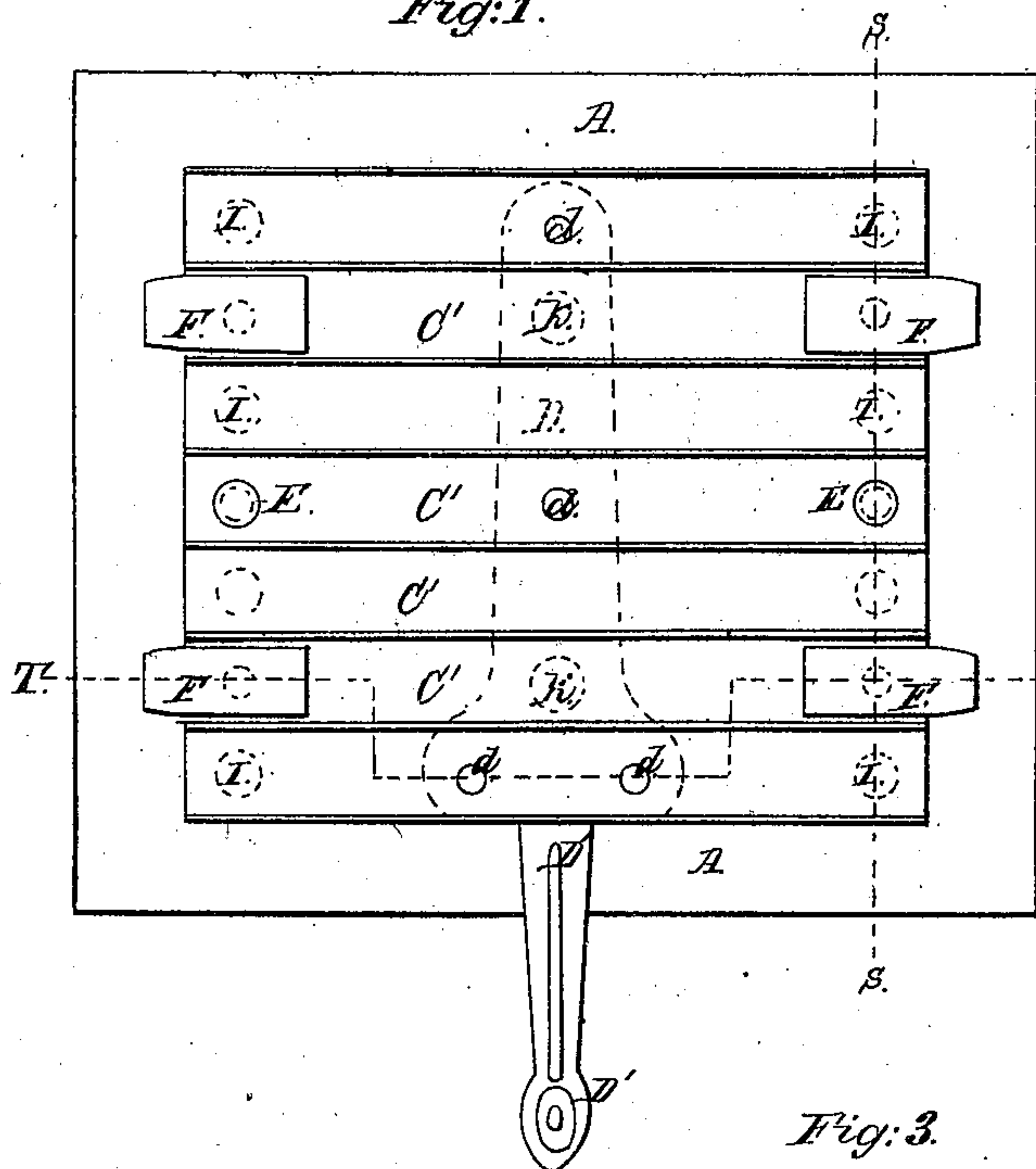


Fig. 2.

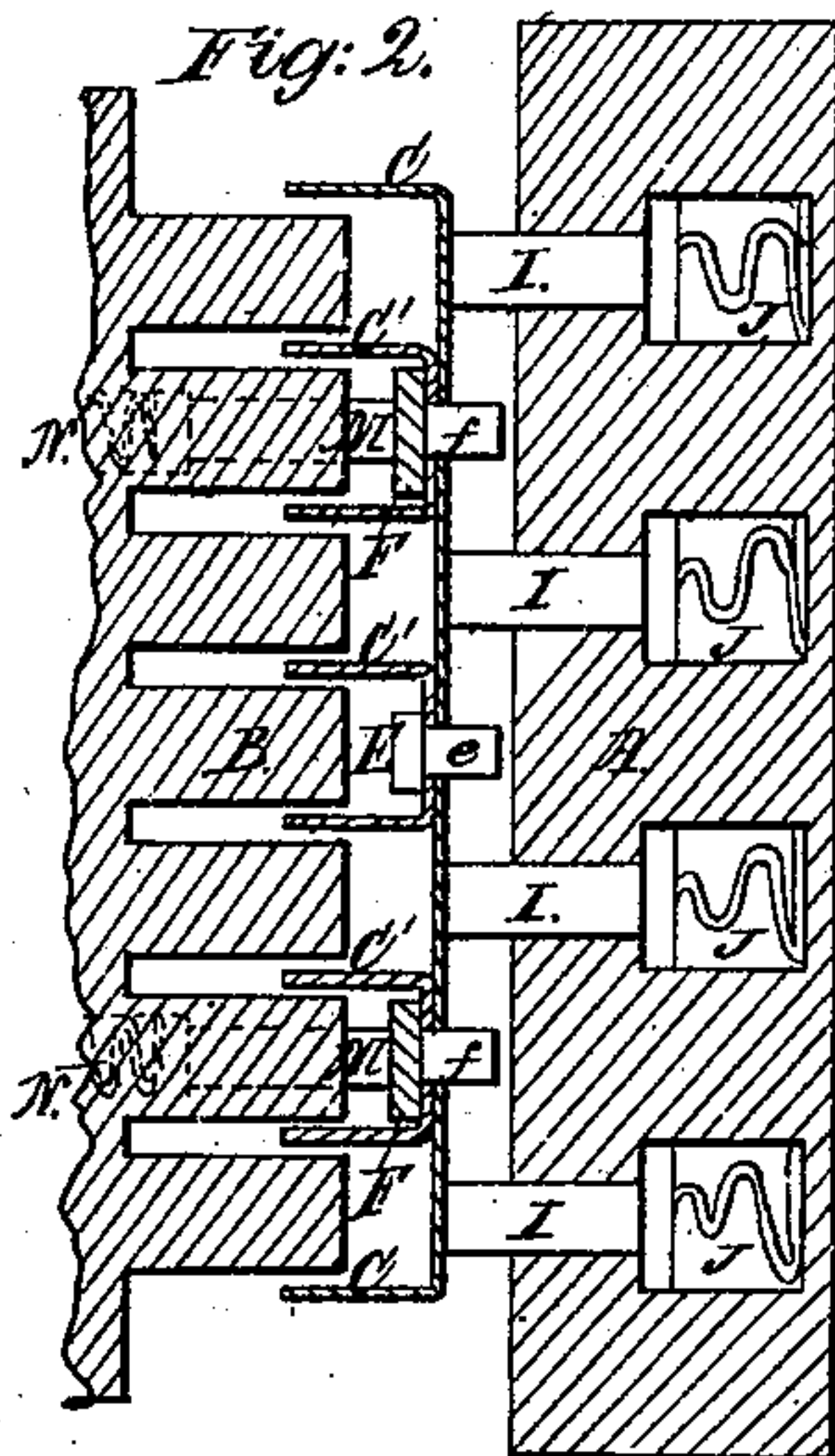


Fig. 3.

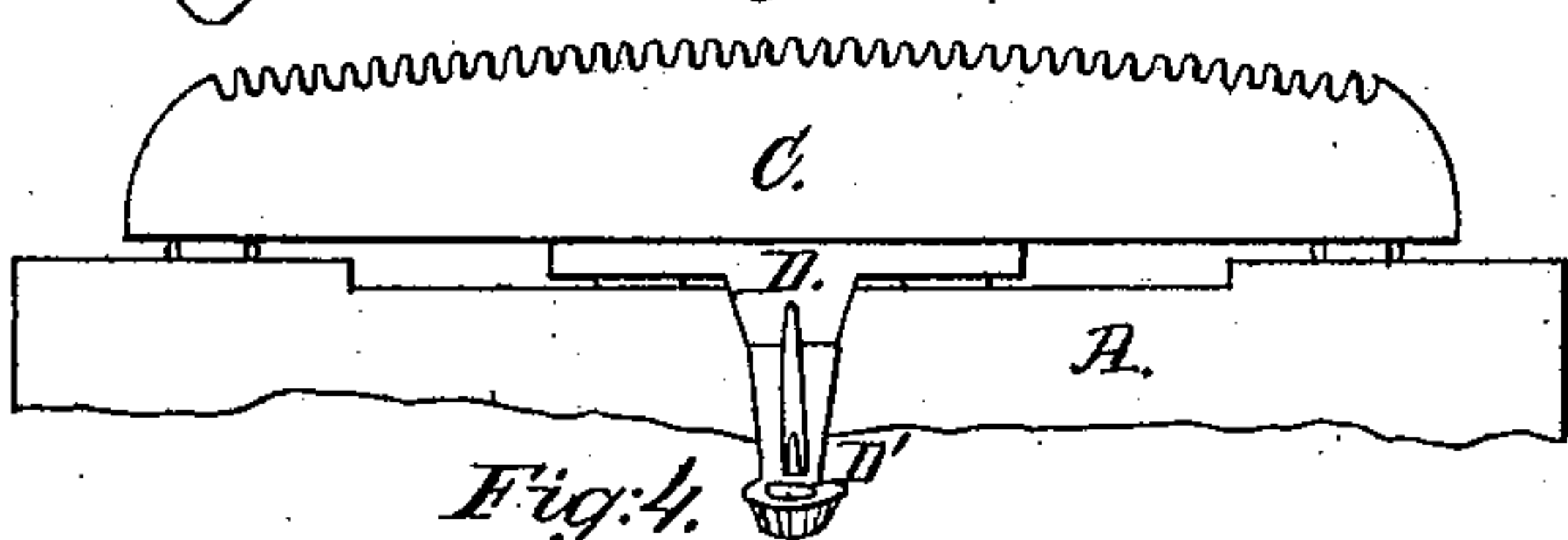


Fig. 4.

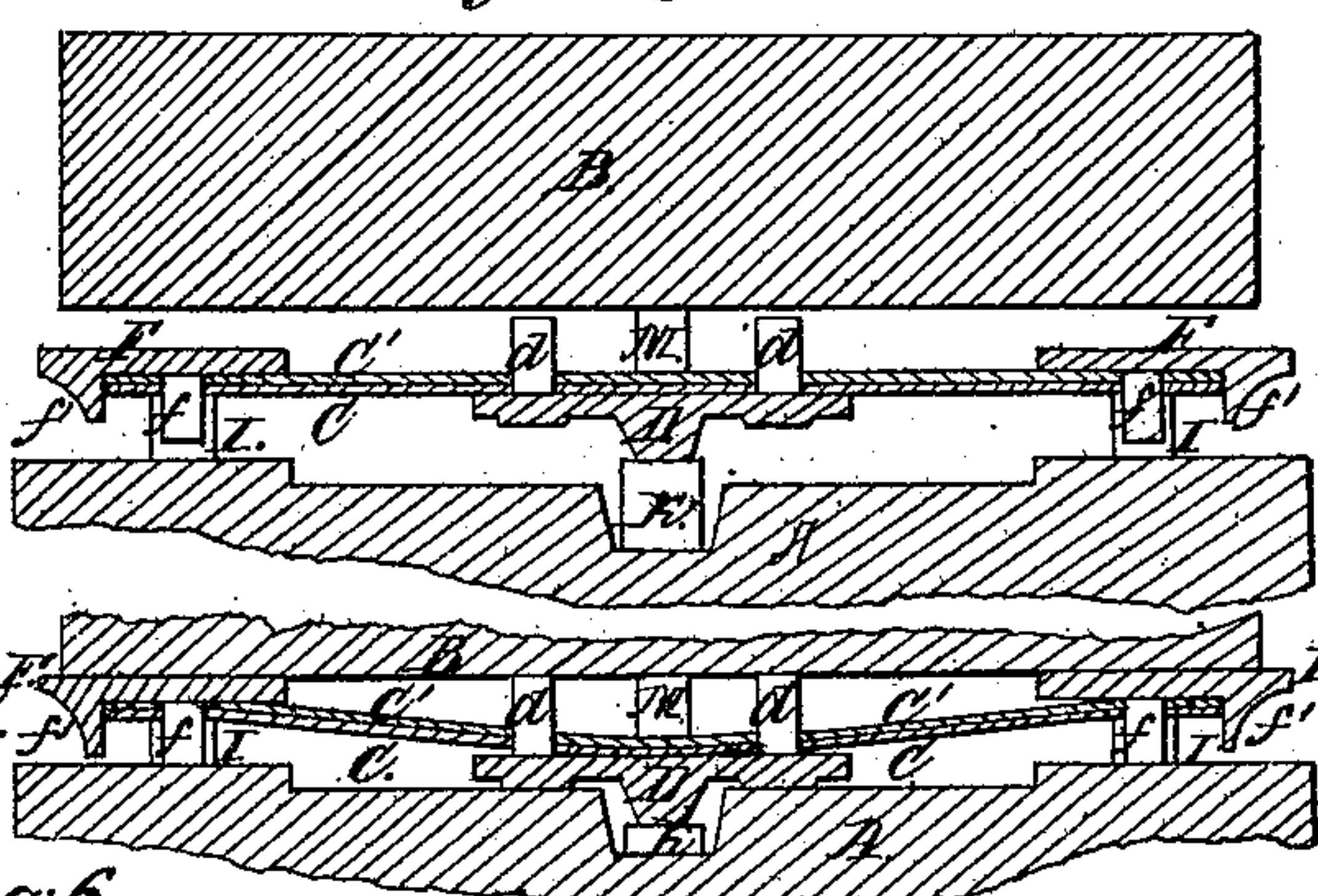


Fig. 5.

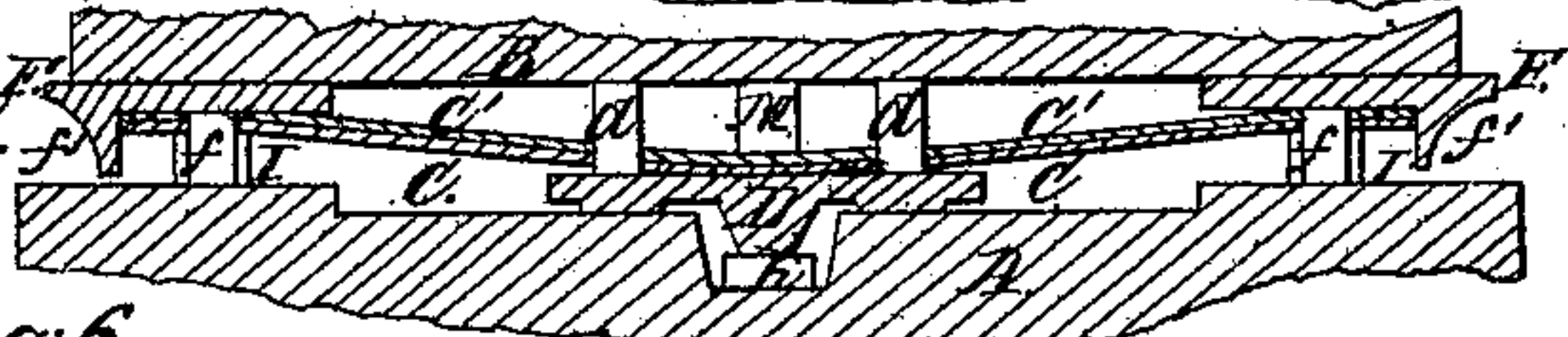
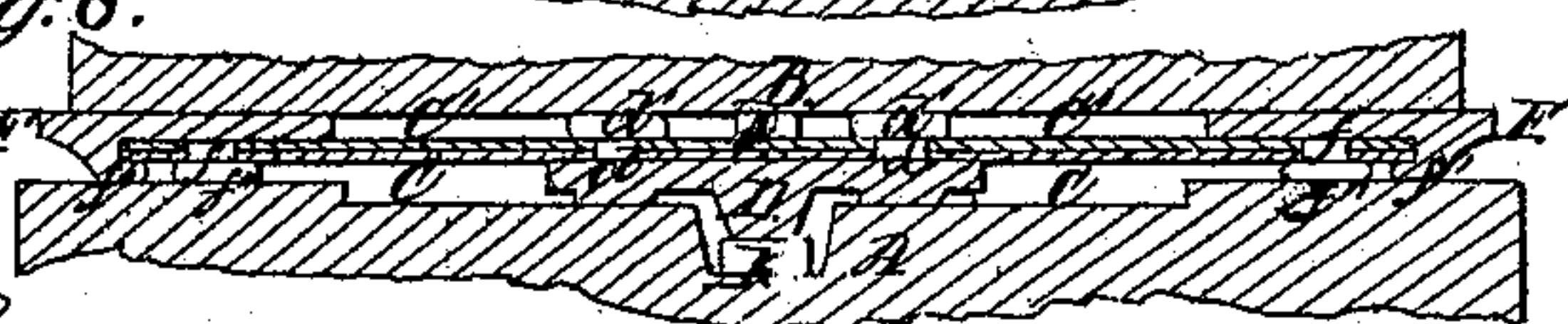


Fig. 6.



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UNITED STATES PATENT OFFICE.

B. B. HOTCHKISS, OF SHARON, CONNECTICUT.

RIVETING CURRYCOMBS.

Specification of Letters Patent No. 31,064, dated January 1, 1861.

To all whom it may concern:

Be it known that I, B. B. HOTCHKISS, of Sharon, in the county of Litchfield and State of Connecticut, have invented a new and useful Improvement in Dies for Heading or Riveting Currycombs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the lower die with a curry comb in position to be headed. Fig. 2 is a section of the same together with the upper die in a partly depressed position,—the section being taken on the line S S in Fig. 1. Fig. 3 is an end elevation of the parts shown in Fig. 1. Fig. 4 is a section through both dies and the comb, taken on the line T, T, in Fig. 1, and showing the upper die in a partially depressed position. Fig. 5 is a similar section showing the upper die about commencing to head or compress the fastenings, and Fig. 6 is a corresponding section showing the upper die depressed to its fullest extent and the comb completely headed.

Similar letters of reference indicate like parts in all the figures.

In the curry combs for which my invention is intended rivets or equivalent loose pieces are introduced from the front side, while the back frame or strap is also connected by projections having an effect like rivets, which enter from the back. My invention is intended for heading or securing all these fastenings at one and the same operation, thereby effecting a great economy of time over that required to head them separately.

In the use of my invention the parts of the comb are applied together loosely, and laid upon certain supports above the lower die. The upper die is then brought down by mechanism with great force and compresses or heads all the fastenings simultaneously.

To enable others skilled in the art to make and use my invention I will proceed to describe it by the aid of the drawings.

A is the lower die, which is firmly fixed and is composed of hardened steel or faced with such or other suitable material, at the points which are subjected to wear.

B is the upper die, which is mounted on any suitable mechanism (not represented, but which is familiar to mechanics) for giving it a powerful vertical motion, either at

regular intervals or at the will of the attendant. This die is deeply recessed, as represented in Fig. 2 to allow the toothed parts of the comb to stand therein unaffected, and descends so near to A as to head the fastening in the manner shown in Fig. 6. The acting parts of B are faced with steel, or otherwise made hard, so as to withstand the wear. The back or main body of the comb is designated by C and the toothed parts which are cut separately and fastened thereon by C'. Suitable holes are punched in each to receive the fastenings.

D is the back frame or strap, which is made of malleable iron and is cast with projections *d*, adapted to extend through holes provided in C and C', and to fasten thereto in the manner common to rivets.

E, E, represent the head, and *e*, *e*, the cylindrical parts of common rivets.

F, F represent the knockers, *f* conical projections to serve as fastenings for F and *f'*, *f'* other projections or shoulders which are cast thereon.

The parts *e*, and *f*, are introduced into the proper holes in C, C', by hand as are also the projections *d* but the manner in which *e* and *f*, are introduced differs from that in which *d*, is introduced—inasmuch as *e* and *f*, are inserted from the front face of the comb, while *d*, *d*, are necessarily introduced from the back.

Near the edge of the upper face of A are a number of holes in which are loosely mounted vertical pins or metal bearers I which are free to slide up and down to a limited extent. They are forced upward by stout coiled springs, J, which stand in chambers beneath as represented. Near the middle of the upper face of A are other holes in which are similarly mounted other bearers, K, which are pressed upward by similar coiled springs not represented.

Near the middle of the lower face of the upper die B are correspondingly mounted vertical pins or bearers, M, which are free to slide vertically to a limited extent. They are pressed down by coiled springs N which latter are inclosed in chambers above M as represented.

The operation is as follows,—the several parts being previously prepared the attendant, usually a girl, takes the back frame D and holds it in a horizontal position with the projections *d*, directed upward. She then takes the part C and applies it face

upward, upon D, allowing the holes in C to receive the projections d . She then takes the several toothed parts, C' , C' , C' , and lays them in their places. The gravity of these parts is now sustained entirely upon D. She next takes the several parts E, E, and F, F, F, F, and applies them as represented, introducing e and f , into the corresponding holes in C and C' . The gravity of these small parts is now sustained entirely upon the parts previously adjusted as represented in Figs. 2 and 4 so that moving D carries the whole. D is now lifted by its tang, or handle D' , and the whole is placed over the lower die, A, resting its weight upon the bearers I, K, as shown in Figs. 2 and 4. On the descent of the upper die, B, its bearers, M, tend to urge the middle portions of C and C' downward into close contact with D while the bearers I tend to urge the edge portions of C and C' upward into close contact with E and F. As the dies A and B approach together the lower middle bearers K sink and allow the back of D to rest firmly upon A as shown in Fig. 5. The parts d , e and f are all of equal length and commence to be crushed or headed simultaneously, the face of A acting upon and heading the points of e and f , as shown in Figs. 5 and 6, while the face of B acts upon and heads the points of d , as shown in the same figures.

The length of d , e and f is represented somewhat greater in the drawings than is used in practice and the bending of the sheet metal parts C, C' , as shown in section in Fig. 5 is exaggerated. In practice it does not usually bend to any considerable extent but the forces applied by the bearers I and M tend to induce such bending and the several parts when applied together and headed in the manner herein shown and described, are found to assume the conditions shown in Fig. 6 the sheet metal parts C, C' being confined close against the parts D and also close against the parts E and F. The swells or heads d' , formed by the action of the dies on d , are above or in front of C, C' , and the heads formed by the action of the dies on e

and f are below or behind the same sheet metal parts. The pressure of the bearers M, besides aiding to urge C and C' into close contact with d during the heading operation also act to steady the parts and prevent any jostling due to the early action of the die B from displacing the parts.

Prior to my invention the only means of heading such combs known to me was riveting by a hammer held in the hand of a workman, and the fact that a portion of the fastenings were introduced from the back, and others from the front was supposed to preclude the possibility of accomplishing the same effect by machinery. By the employment of the dies A, B, with the supports I, K, M, in the manner represented all difficulty is obviated, and the heading of the entire comb is effected by a single blow or compression with great perfection.

My invention produces more uniform and better combs and the expense of heading is very much less than that of performing the same operation by hand.

I do not limit myself to the employment of coiled springs as a means for operating the bearers, as it is evident that springs of a different character, or weighted levers, or parts operated by positive mechanism, might be employed with equivalent effect, but

Having now fully described my invention with the means which I consider the best adapted to put it in practice, what I claim as new and desire to secure by Letters Patent is—

Supporting the several parts of a curry comb in their proper relative positions between and while being acted upon by the heading dies A, B by means of the bearers I, K, M, or their equivalents, substantially as and for the purpose above specified.

In testimony whereof I have hereunto set my name in the presence of two subscribing witnesses.

B. B. HOTCHKISS.

Witnesses:

G. H. BABCOCK,
D. W. STETSON.