

No. 609,770.

Patented Aug. 30, 1898.

G. A. BATES.
LINOTYPE MACHINE.

(Application filed Mar. 10, 1896.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

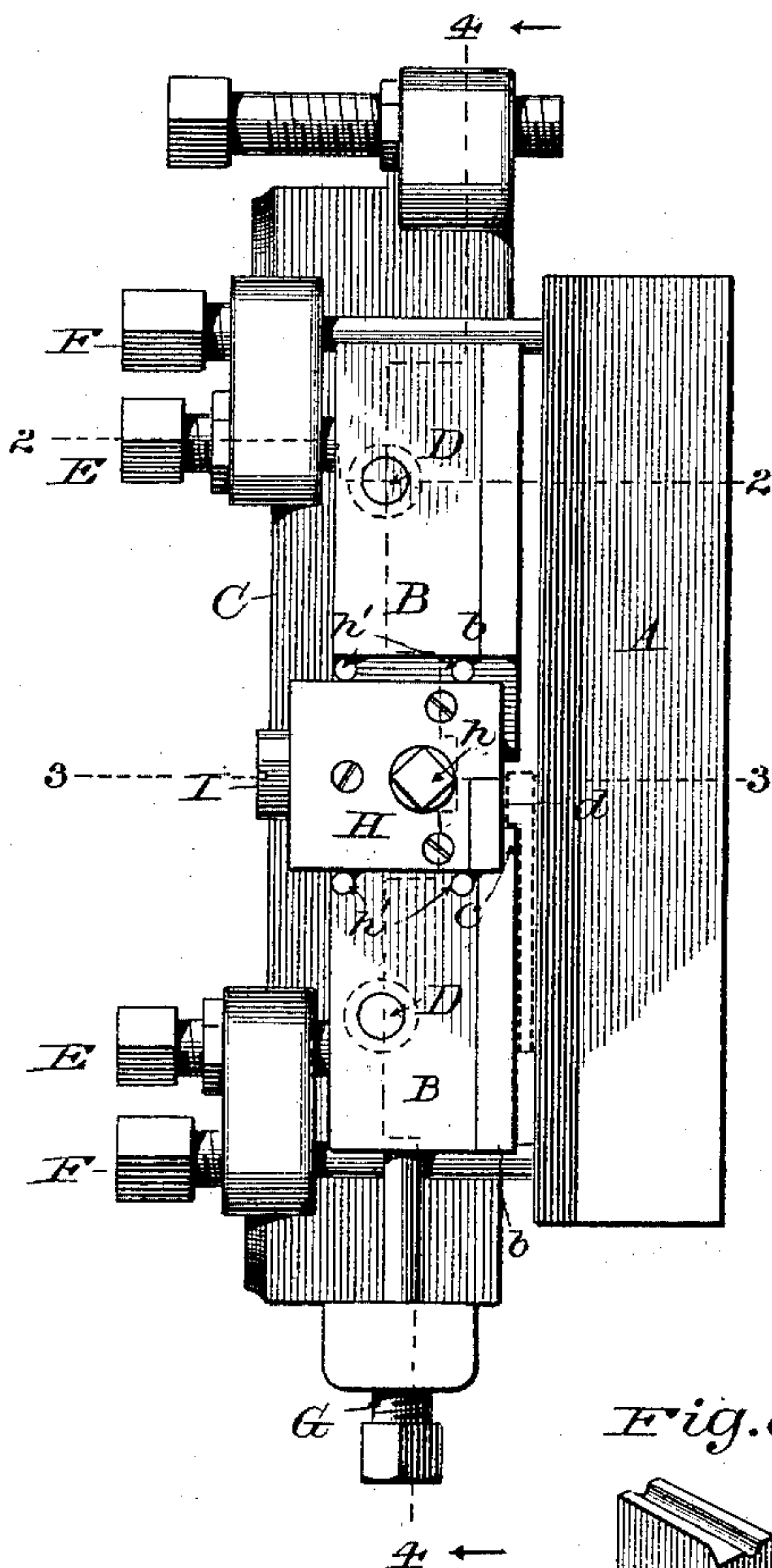


Fig. 2.

On line 2-2

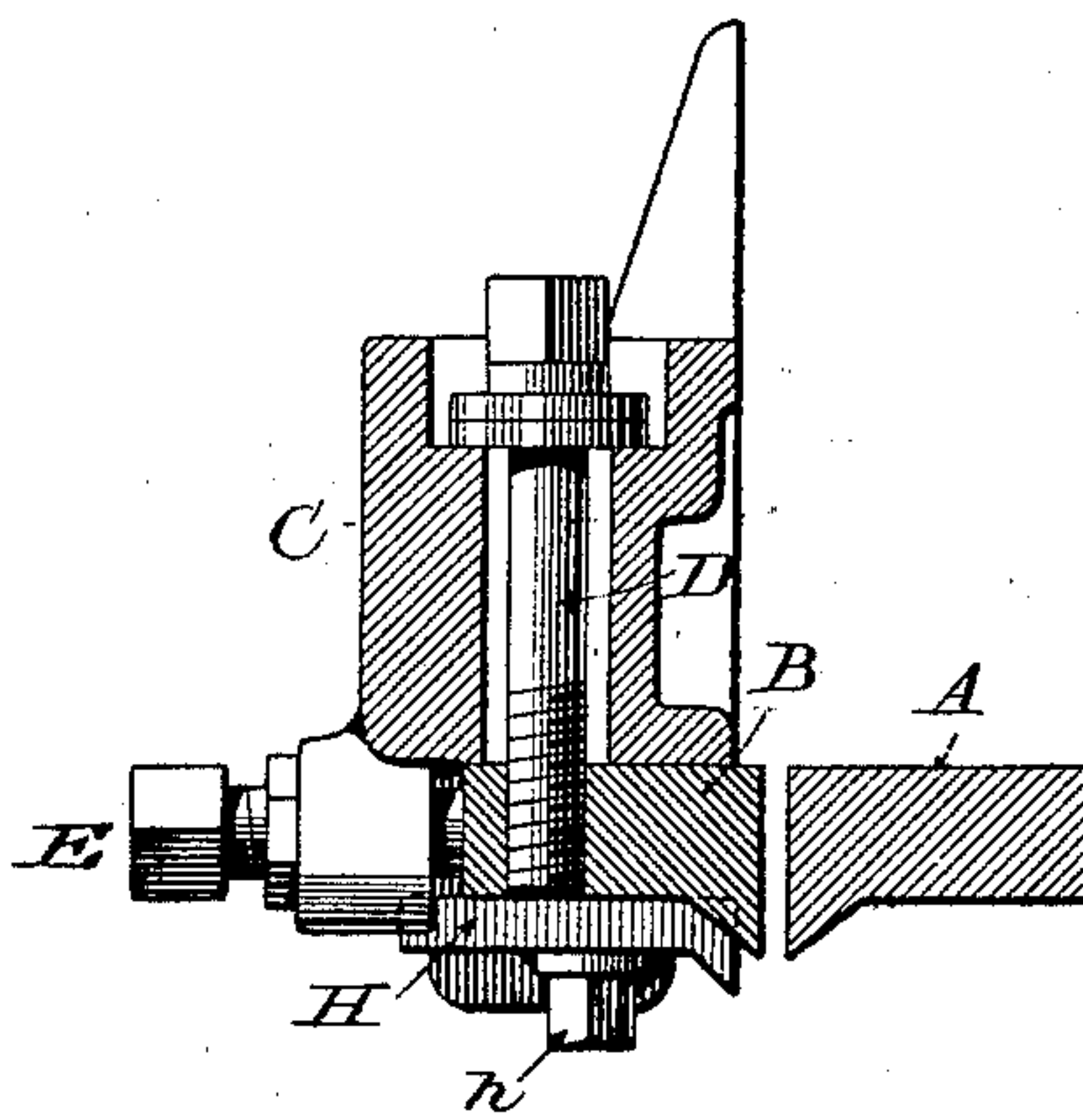


Fig. 3.

On line 3-3

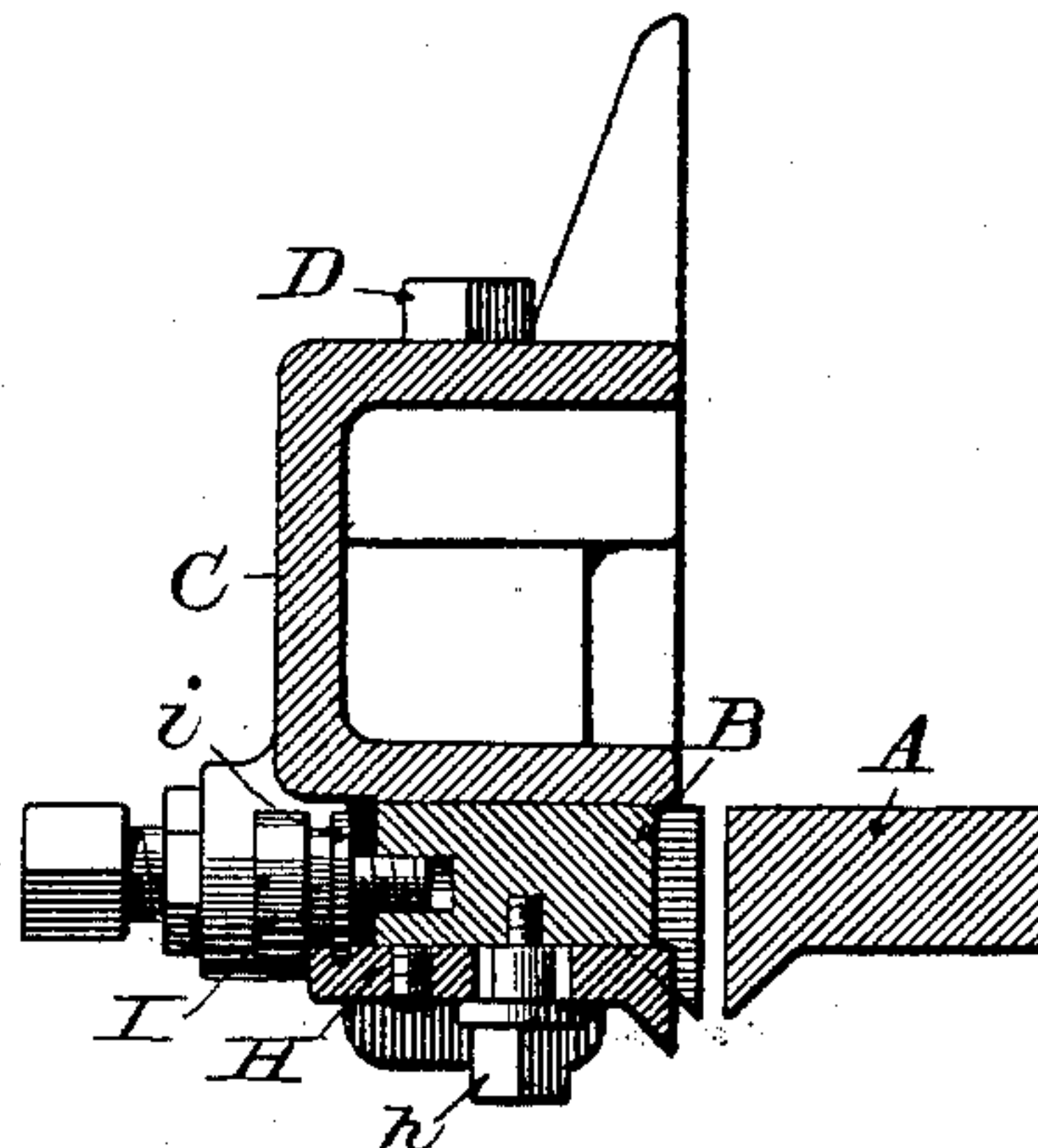
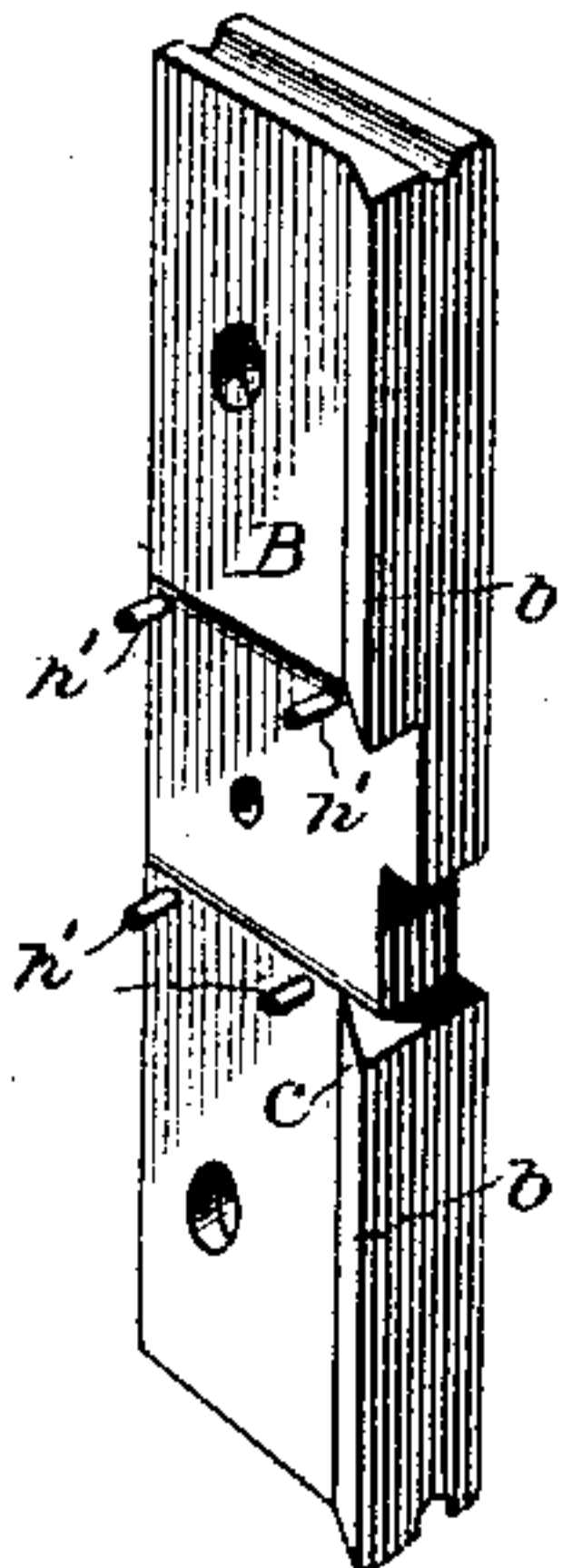


Fig. 6.



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Fig. 4.
On line 4-4

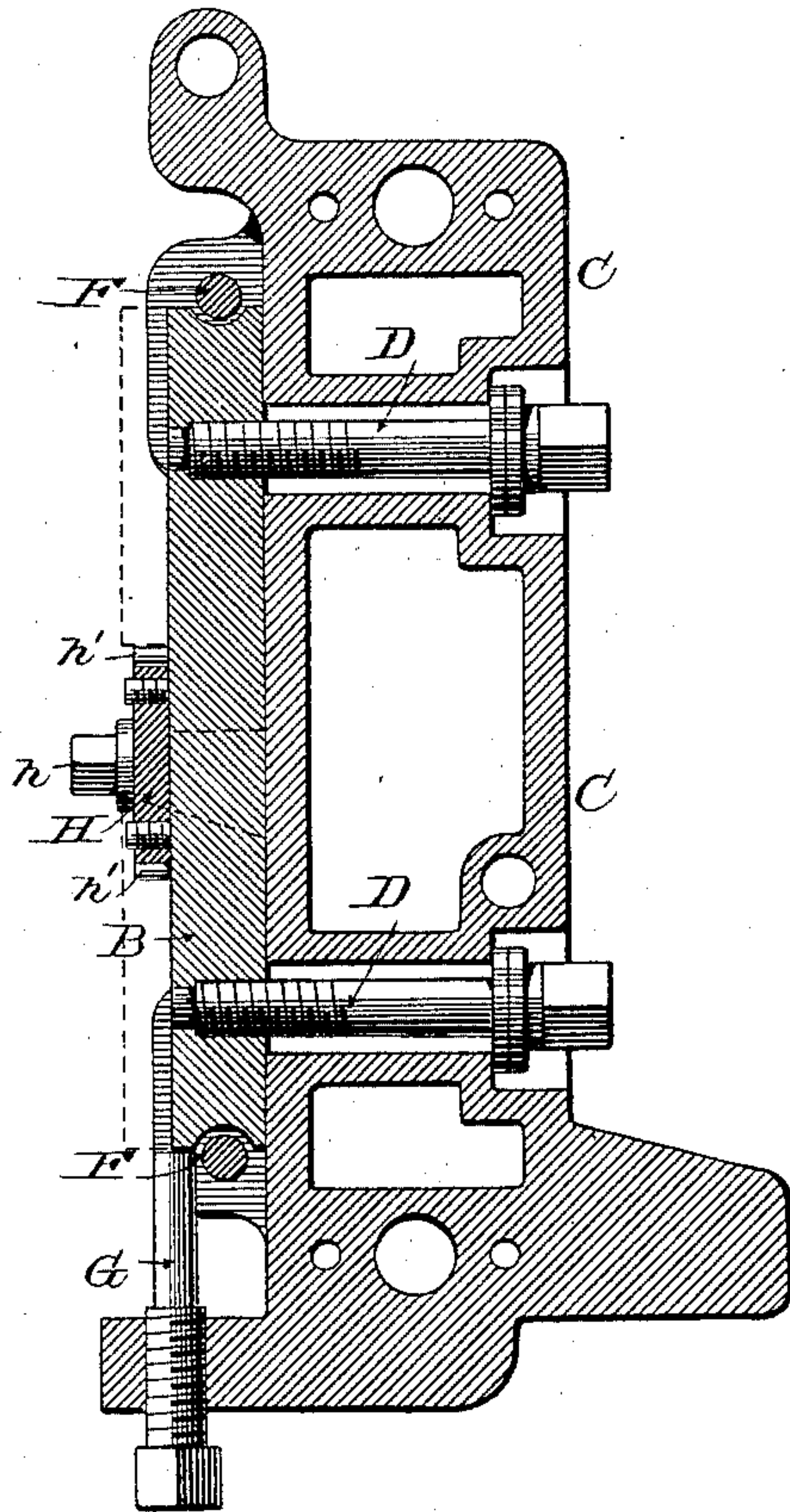
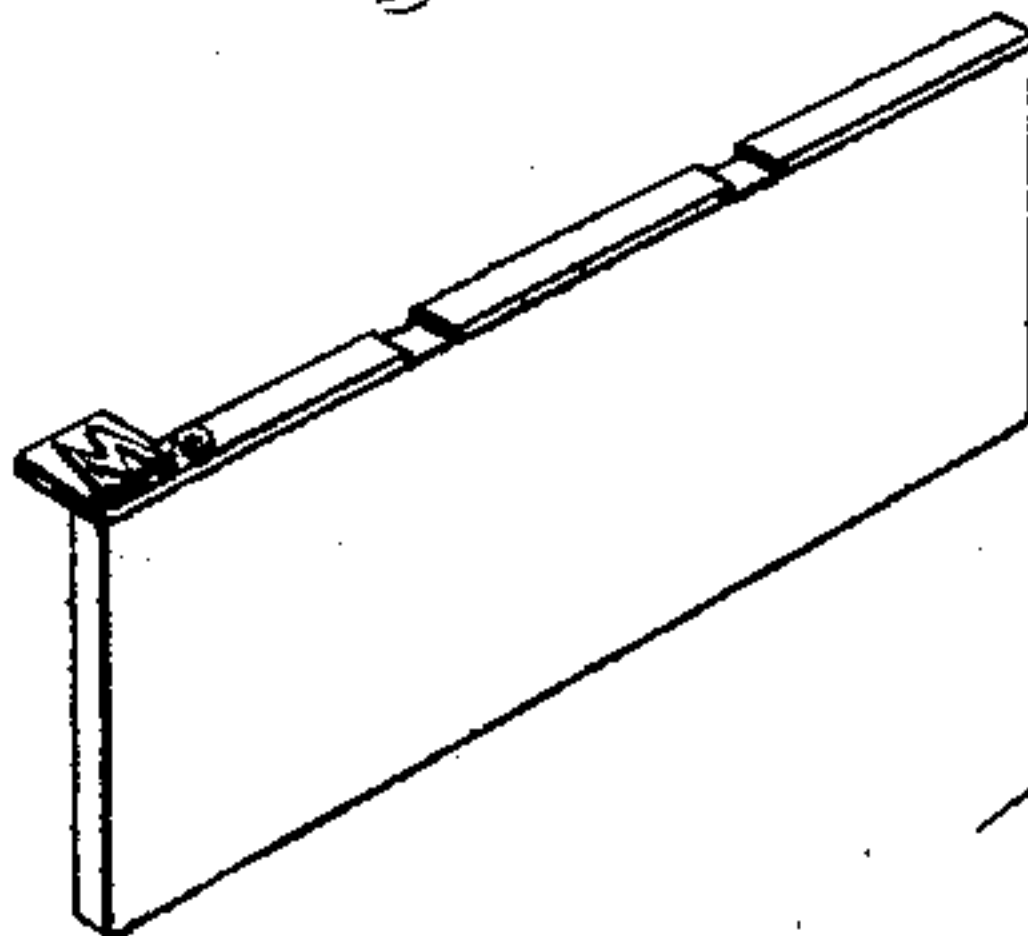


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE A. BATES, OF NEW YORK, N. Y., ASSIGNOR TO THE MERGENTHALER LINOTYPE COMPANY, OF NEW YORK.

LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 609,770, dated August 30, 1898.

Application filed March 10, 1896. Serial No. 582,638. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. BATES, of New York, (Brooklyn,) county of Kings, and State of New York, have invented a new and
5 useful Improvement in Linotype-Machines, of which the following is a specification.

In linotype-machines, more particularly those of the Mergenthaler type, it is customary to produce linotypes or slugs, each bearing the characters to print an entire line, by
10 delivering molten metal into a suitable mold against single-letter matrices temporarily assembled in line against the face of the mold.

In these machines it is customary to deliver
15 the slugs from the mold between two trimming-knives, by which they are dressed to a uniform thickness. In some cases it is desirable to provide the linotypes with one or more two-line letters—that is to say, letters
20 which are larger than the face of the bar and of the remaining letters or characters. These two-line letters produced in the form and manner represented in Letters Patent of the United States granted to Ottmar Mergenthaler, No. 551,981, dated December 24, 1895,
25 project or overhang on one side of the slug or linotype. It is therefore impossible to deliver the slugs with these overhanging characters between the ordinary trimming-knives,
30 as they would sever the overhanging portion. It is therefore necessary to provide machines in which the two-line letters are produced with knives specially arranged, so that they will trim the body of the slug without acting
35 on the overhanging characters. It is also desirable to provide means for trimming the edge of the overhanging character, so that any bur or fin thereon may be removed.

My invention is directed to these ends; and
40 it consists, first, in an adjustable knife constructed and mounted in such manner that it may be adjusted to trim the entire surface of the slug or to trim only that portion which is to one side of the overhanging character, as
45 demanded.

It further consists, broadly, in so mounting the knife that it may be adjusted endwise—that is to say, in the direction of the length of the passing slug.

50 It also consists in a supplemental knife to trim the edge of the overhanging character

and in means by which the trimming-knife may be positively adjusted forward and backward.

Except as to the features hereinafter described the machine may be in all respects
55 of ordinary construction, and I have therefore limited the accompanying drawings to those parts with which my invention is immediately associated. 60

Referring to the drawings, Figure 1 is a face view of my adjustable knife and its adjuncts, looking from the interior of the machine outward in the direction in which a slug is ejected. Figs. 2 and 3 are horizontal
65 cross-sections of the same on the correspondingly-numbered lines of the preceding figure. Fig. 4 is a vertical longitudinal section on the line 4 4 of the preceding figures. Fig. 5 is a perspective view of one of the linotype-slugs
70 with an overhanging letter. Fig. 6 is a perspective view of the main knife.

Referring to the drawings, A and B represent the two knives between which the slug is ejected, the former being attached rigidly
75 to the machine, while the latter is adjusted as hereinafter described.

C represents a portion of the main frame commonly known as the "knife-block," having its face adapted to receive and support
80 the knife B, which is connected thereto by means of two bolts D, passing horizontally through the block, the opening through which these bolts pass being of such size that the knife may be adjusted to and from its com-
85 panion in order to trim slugs of different thicknesses, and also adjustable vertically for the purpose hereinafter described.

The adjustment of the knife to and from its companion has long been practiced in linotype-machines; but I believe the present to
90 be the first instance in which there was any provision for effecting the vertical adjustment of the knife, and, as will hereinafter appear, this is an important feature of my in-
95 vention.

E E are screws threaded through the knife-block and acting against the back of the knife B to give it support and regulate its distance
100 from the knife A, as usual.

F F are the customary screws for regulating the distance between the two knives.

G is a vertical screw tapped through a lip on the lower end of the knife-block and acting against the lower end of the knife B to effect its vertical adjustment.

5 Referring to the knife B, it will be observed that the lower portion of its edge between the points *b c* is straight and unbroken, so that it may give the passing slug a true flat surface.

10 It will be observed that above the portion *c* the edge of the knife is cut away, leaving the open space or cavity *d* for the passage of the overhanging lip or ear on the slug. The shape and position of the slug are indicated by

15 dotted lines, and when it is ejected between the knives and the knife B adjusted to the proper height the body of the slug will pass between and be acted upon by both knives, while the overhanging ear will pass freely

20 through the opening *d*. When the edge of the ear is to be trimmed, I provide a secondary knife H, the forward cutting edge of which stands in suitable position to dress the edge of the overhanging ear or character on

25 the slug. During the trimming of the edge of the ear it lies against and is sustained by the face of the mold against which it is cast, as usual. The mold has, as usual, a slight forward motion just in advance of the ejection of the slug, so that the ear is trimmed by

30 the secondary knife before the advance of the slug out of the mold and toward the knife begins. As this ear will project a greater or less distance according to the size of the type

35 characters in use, the knife H is preferably made adjustable, as shown, being secured to the main knife by a bolt *h*, passing through a slot and guided by pins or studs *h'*. It is moved forward and backward and secured in

40 a required position by a horizontal screw, which is tapped into the back of the main knife, this thread having a circumferential flange *i* engaging a slot in the knife H, so that as the screw *l* is turned the knife H is moved

45 positively forward or backward. This mode of positively adjusting the knife both forward and backward may be used also in connection with the main knife, if desired. By adjusting the knife B vertically—that is to say, in the

50 direction of its length and of the length of the slug—the end of the trimming-surface *b c* may be raised or lowered, and thus the body of the slug may be trimmed to a greater or less portion of its length, according to the width of the

55 overhanging ear or character, or the knife may be raised so far as to trim the slug throughout its length when the ear is not employed.

Obviously the range of vertical adjustment may be increased or diminished at will, and if the knife is raised a sufficient distance it is manifest that ears on the lower end of the slug may be permitted to pass thereunder in the same manner that the ears on the upper end of the slug are permitted to pass thereover. The essential feature of my invention in this regard is the mounting of the knife so that it may be raised and lowered in the direction of the length of the passing slug, and it is manifest that the details of construction and means of adjustment may be varied within the range of mechanical skill.

The two knives herein shown are of the maximum length used in linotype-machines, it being the custom in all cases to make these knives of such length that they will trim the long slugs used in bookwork.

In the case of newspaper-lines, which are comparatively short, that part of the main knife lying below the notch *d* is sufficiently long to trim the slugs and the portion of the knife above the notch is inoperative and may be omitted. The upper part is retained in such cases merely as a matter of convenience in manufacture.

Having thus described my invention, what I claim is—

1. In a linotype-machine, the combination of a main knife to trim the body of the slug, and a secondary knife extending endwise beyond the cutting portion of the main knife, and also extending beyond the main knife in the direction from which the slug is advanced; whereby the secondary knife is adapted to act on the overhanging ear of the slug before the body portion is trimmed.

2. In a linotype-machine, a trimming-knife B and a secondary trimming-knife H mounted thereon in position to trim a different portion of the slug and adjustable forward and backward in relation thereto.

3. In a linotype-machine, a trimming-knife B adjustable forward and backward and a secondary knife H adjustable forward and backward independently of the other, the two having parallel cutting edges arranged to act on different portions of the slug, substantially as described.

In testimony whereof I hereunto set my hand, this 27th day of February, 1896, in the presence of two attesting witnesses.

GEORGE A. BATES.

Witnesses:

GEORGE COOK RIDER,
JAMES GILLIARD PARSONS.