

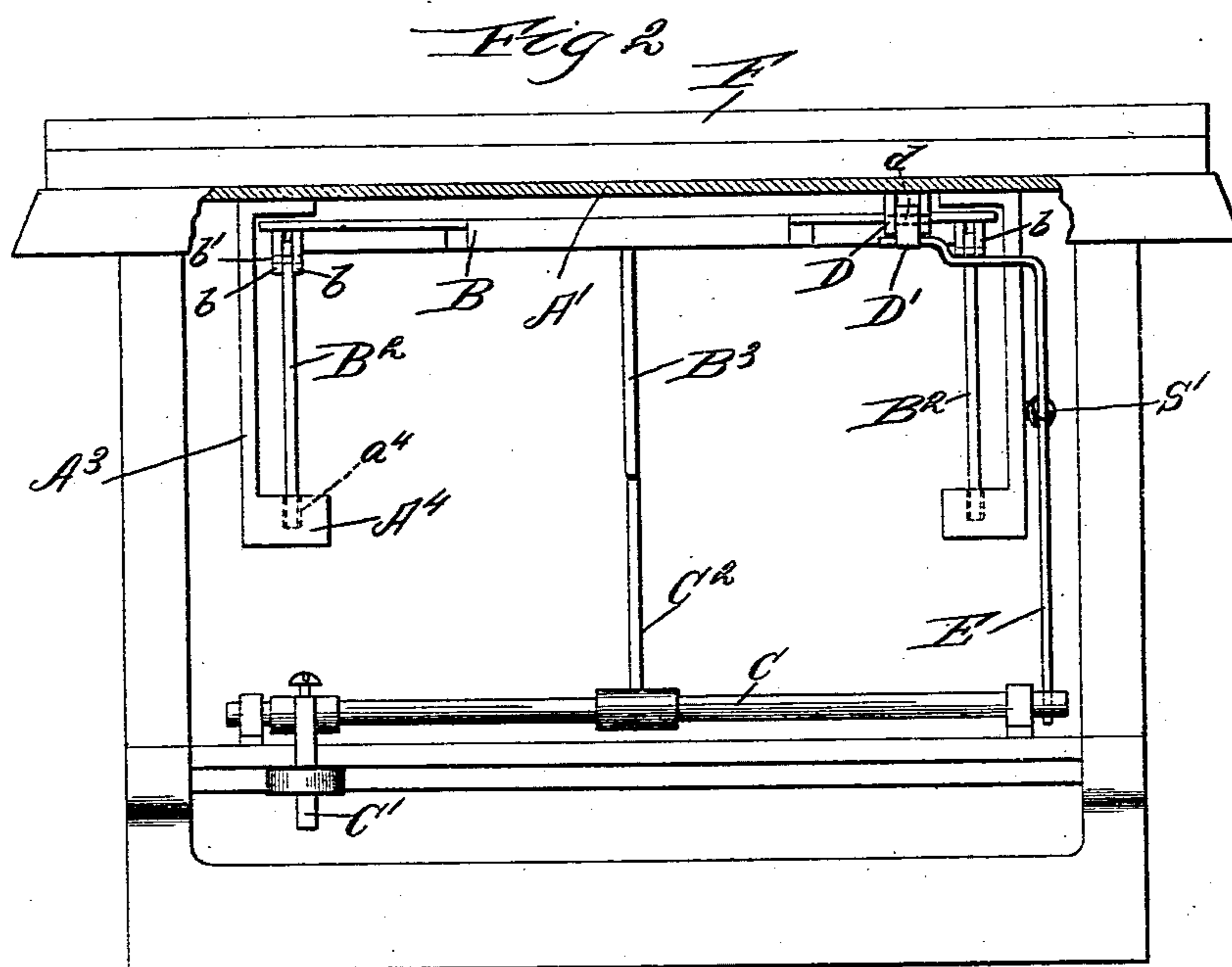
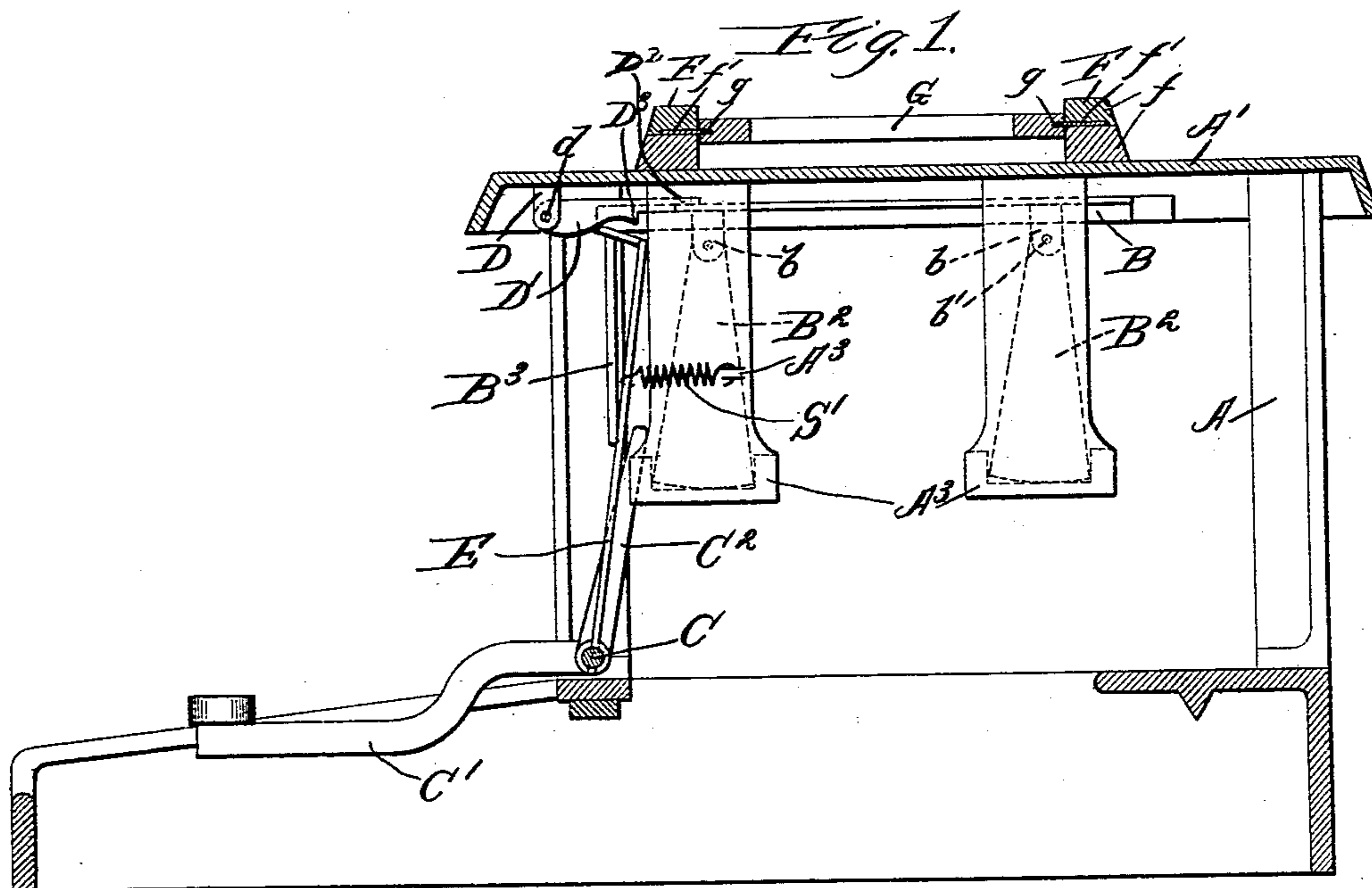
(No Model.)

3 Sheets—Sheet 1.

Z. G. SHOLES.
TYPE WRITING MACHINE.

No. 557,617.

Patented Apr. 7, 1896.



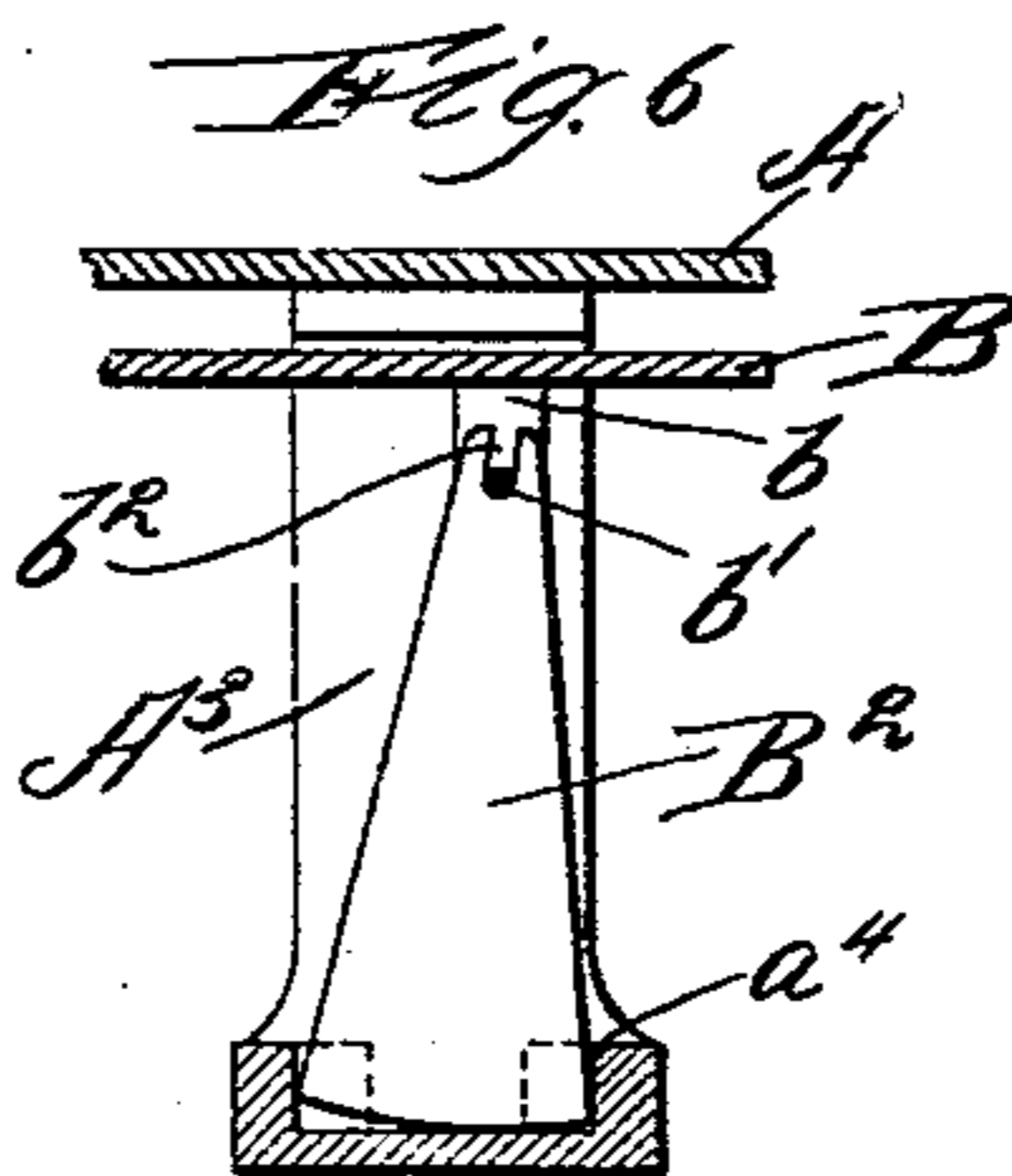
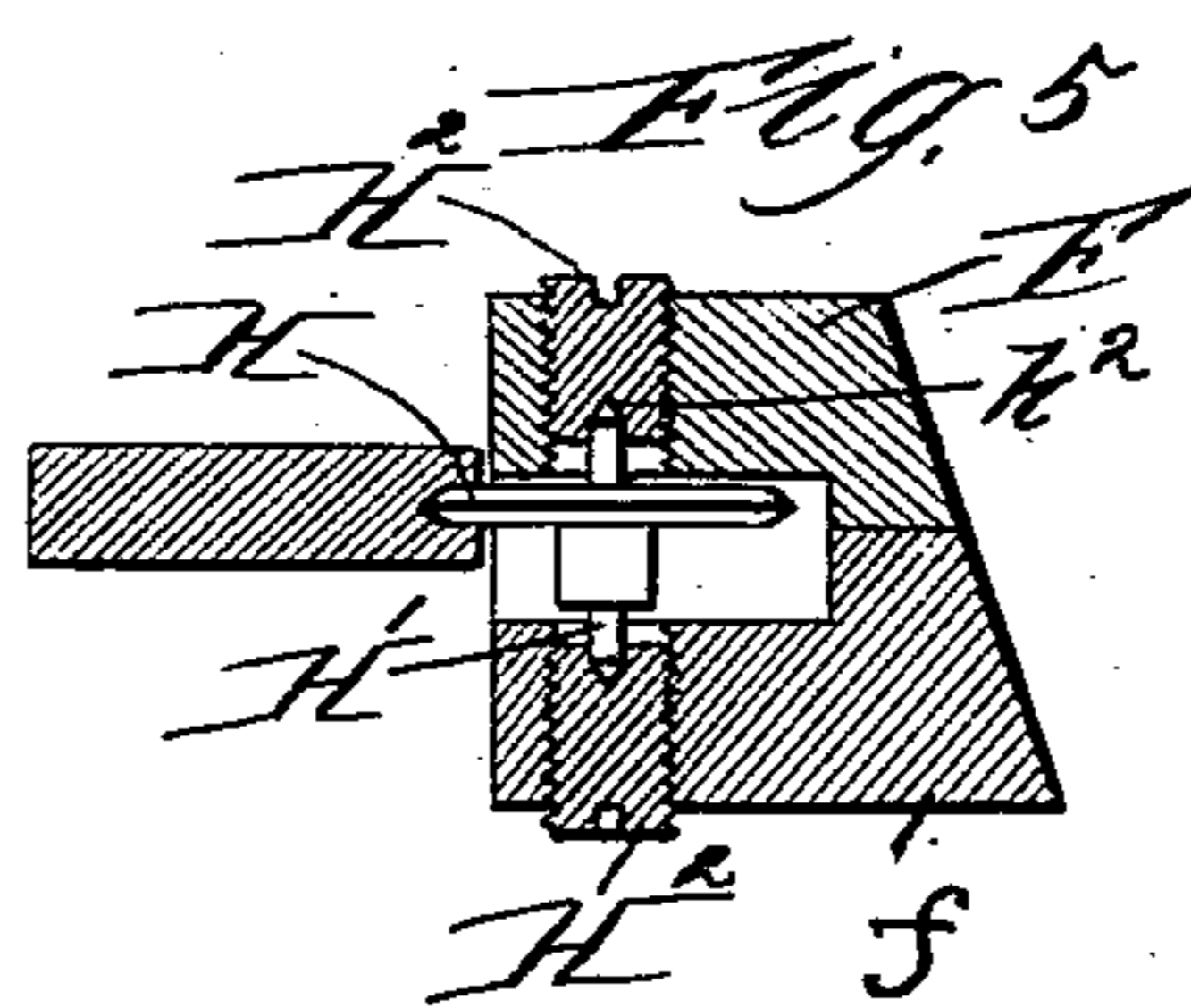
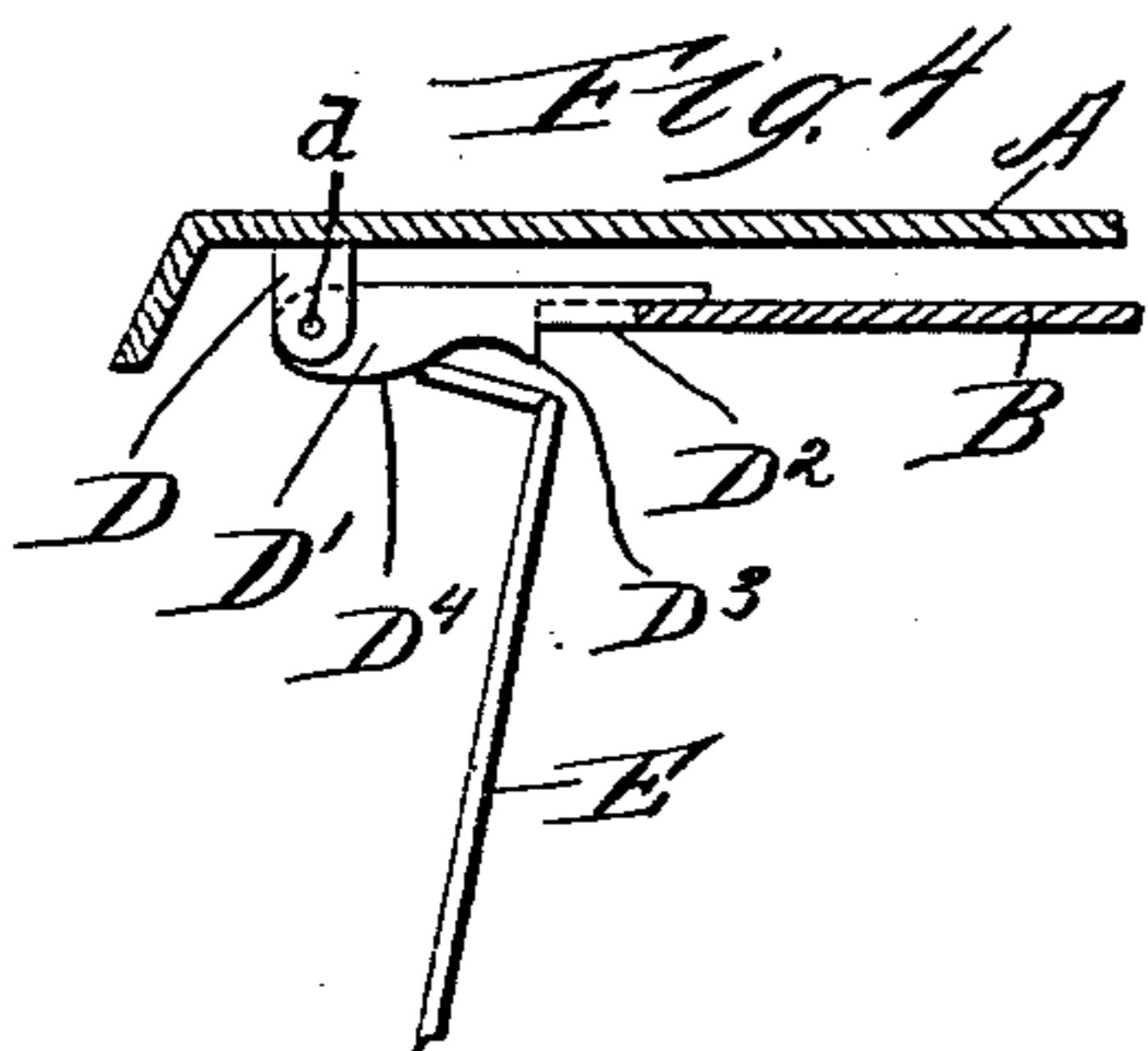
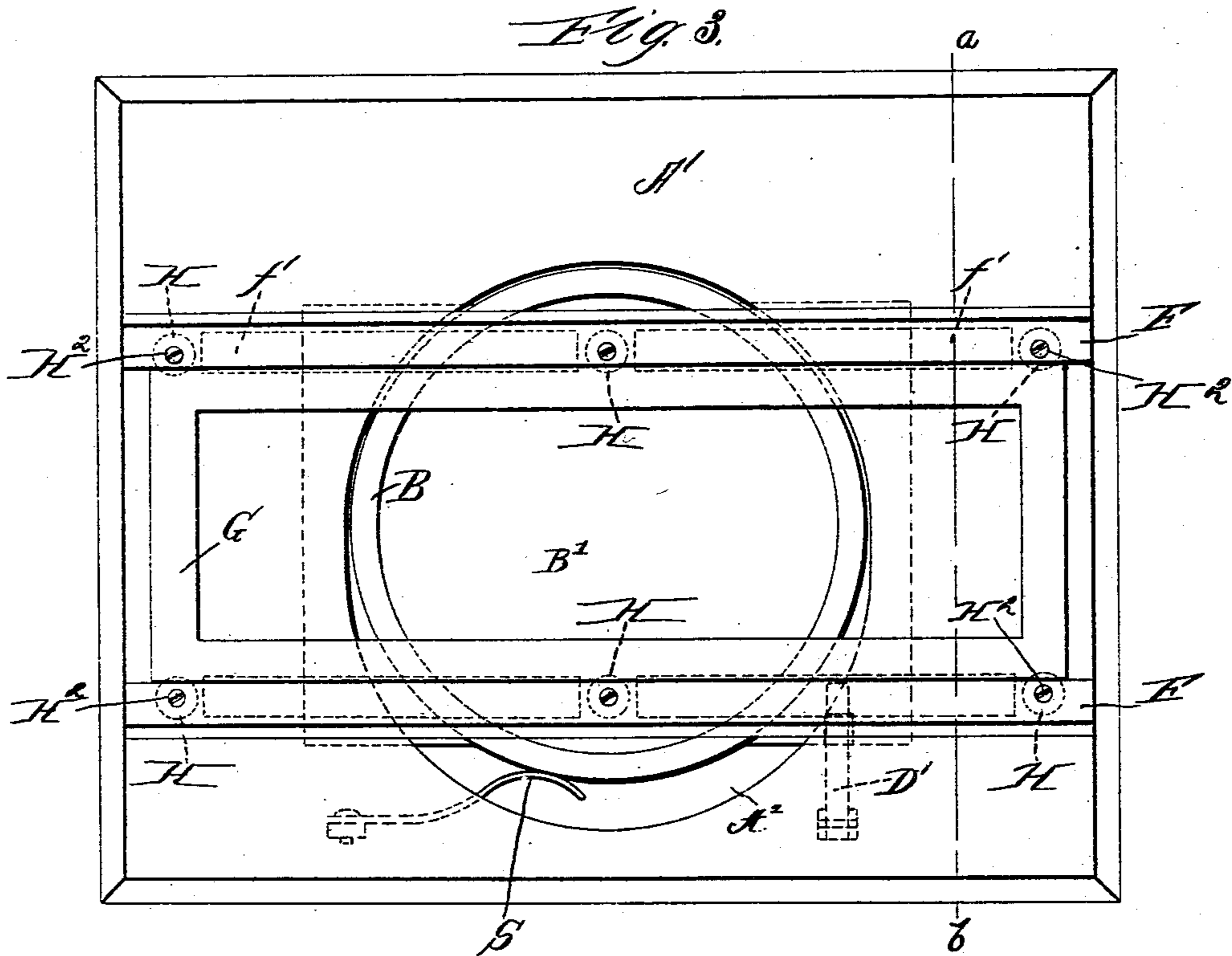
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Inventor:
Zalmon G. Sholes
By Cyrus Kehr atty.

Z. G. SHOLES.
TYPE WRITING MACHINE.

No. 557,617.

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Witnesses:
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Inventor:
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By Cyrus Kehr *Atty.*

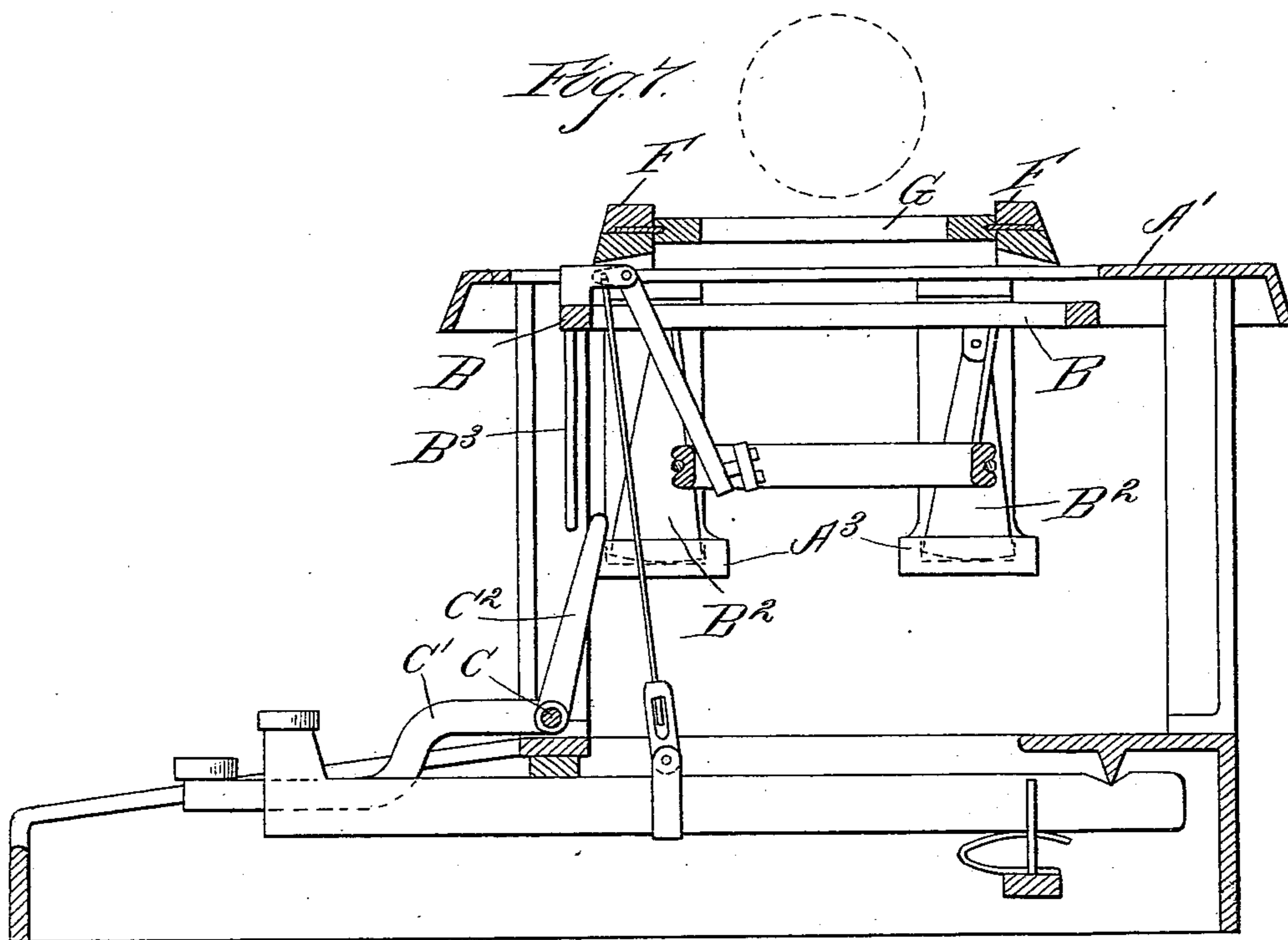
(No Model.)

3 Sheets—Sheet 3.

Z. G. SHOLES.
TYPE WRITING MACHINE.

No. 557,617.

Patented Apr. 7, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

ZALMON G. SHOLES, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE REMINGTON-SHOLES TYPEWRITER COMPANY, OF ILLINOIS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 557,617, dated April 7, 1896.

Application filed April 7, 1893. Serial No. 469,493. (No model.)

To all whom it may concern:

Be it known that I, ZALMON G. SHOLES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Type-Writing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates particularly to typewriters in which the type-bars each bear two types and are mounted upon a horizontal reciprocable support, by the reciprocation of which said type-bars are so shifted as to alternately bring one and then the other of said types to the printing-point, when the type-bar is swung to the center of the circle in which the type-bars are arranged.

The object of this invention is to provide improved means for supporting the support of the type-bars, for automatically locking said support in its normal position and manually unlocking the same preparatory to shifting said support, to the end that said support may be immovable from its normal position excepting when it is desired to shift it.

The invention consists, further, in certain details of improvement in the platen-carriage and the ways upon which said platen-carriage travels.

In the accompanying drawings, Figure 1 is a longitudinal section in the line *a b* of Fig. 3. Fig. 2 is a front elevation. Fig. 3 is a plan. Fig. 4 is a detail of the device for automatically locking the type-bar disk in its normal position. Fig. 5 is a detail of one of the rollers of the carriage-track. Fig. 6 is a detail of one of the rocking disk-supports. Fig. 7 is a detail view of the type-bar supporting-plate, a type-bar attached thereto, and a link and key for operating said type-bar.

A is the frame of the machine.

A' is the top plate. This has a central opening, in or over which is located a disk B

having a central opening B' and supported upon rockers B² arranged at each corner on said disk. The type-arms are hinged to said disk in a circle or a partial circle, as described in an application for Letters Patent filed by me October 17, 1892, Serial No. 449,099.

B² are rockers upon which the disk B is supported. One of these rockers is arranged at each side of said disk.

A³ are brackets depending from said top plate A' to a suitable distance below the disk B, and each of said brackets has an extension A⁴ directed laterally beneath the edge of the disk B. In the upper portion of each of said extensions is a narrow channel *a*⁴, the bottom of which is level and the length of which is parallel to a vertical plane extending from the front to the rear of the machine. Directly above each such channel are two ears *b* depending from said disk and arranged parallel to each other and separated sufficiently to make room for the upper end of the rocker B². A pin *b'* extends from one ear to the other. Each rocker B² is flat and is arranged parallel to a vertical plane extending from the front to the rear of the machine. Its upper end is provided with a notch *b*² which receives the pin *b'*. The lower end of said rocker is rounded to conform to the arc of a circle, of which the pin *b'* is the center and the distance from said pin to the lower end of the rocker is the radius. The lower end of said rocker rests in said channel *a*⁴ and is prevented by said channel from moving laterally or forward and backward at its lower end; but it will be seen that said rocker may rock in said channel in a vertical plane extending from the front to the rear of the machine. Since each of the rockers is coupled by its upper end to the disk B in the same manner, it follows that said disk may be reciprocated toward and from the front of the machine by rocking said rockers. It will be seen, furthermore, that the elevation of the bottom of the notch *b*² will always remain the same, for it is at the same distance from every portion of the lower end of said rocker. Since the disk B is supported in said notches *b*², it follows that said disk is constantly held at the same distance above the bottom of the

channels a^4 . In other words, by means of these rockers I provide for a horizontal parallel motion for the disk B during its reciprocation. It will be seen that the friction involved in this reciprocation upon said rockers is very slight. It is also to be observed that the manufacture of the parts necessary for this construction is simple and inexpensive. Attention is also to be called to the fact that by supporting said rockers directly from the top plate the relation between the top plate and the disk B may be accurately determined and maintained.

B^3 is an arm extending downward from the front disk B toward the bottom of the machine, as shown in an application for patent filed by me March 18, 1893, Serial No. 466,590. C is a rocking member or rock-shaft extending transversely across the machine near the lower portion of the frame A and beneath the arm B^3 , and C' is a key-lever attached rigidly to said rock-shaft, as set forth in said last-mentioned application. At the middle of said rock-shaft is located an arm C^2 , extended upward behind the arm B^3 , as described in said application; but in the present construction said arm C^2 is not quite in engagement with the arm B^3 . A spring S, Fig. 3, normally holds the disk in the rear position.

I will next describe the means for locking the disk in the rear or normal position.

At the front of the disk B two ears D depend from the top plate in planes parallel to the planes of the rockers B^2 with proper space between them to receive a locking-pawl D' . A pin d extends through said ears and locking-pawl and hinges the latter to said ears. Thus said locking-pawl is afforded a hinge-support from the top plate. A similar support from any other stationary portion of the machine would answer my purpose. Said locking-pawl extends rearward to the front edge of the disk B, and is preferably extended rearward over said edge. On its lower side said pawl has a rearwardly-directed shoulder or stop D^2 , which rests against the front edge of the disk B when the latter is in its rear or normal position. A little farther toward the front said pawl has another rearwardly-directed shoulder or stop D^3 . The precise position for this is the point to be reached by the front edge of the disk B when the latter is at the forward limit of movement.

It will be seen that when the disk B is at its rear position, as shown in Fig. 4 of the drawings, and the shoulder D^2 of the locking-pawl stands in front of said disk, the latter cannot move forward. It will also be seen that if the rear end of said locking-pawl is raised sufficiently to permit the disk to move forward, it may so move until it makes contact with the second shoulder D^3 . It remains now to provide means for raising said pawl simultaneously or substantially simultaneously with the depression of the shift-key C' . For this purpose I have provided the lower

portion of said pawl with a cam-face D^4 , and have attached an upward arm E to the rock-shaft C, said arm having at its upper end a horizontal portion E' extending laterally beneath the locking-pawl and in front of said cam-face and in engagement therewith. Since the arm C^2 is not quite in engagement with the arm B^3 and the arm E is in engagement with the cam-face D^4 , it will be understood that the depression of the key C' will turn the rock-shaft C and move the arm E and the arm C^2 forward simultaneously, the arm E being at once pressed against the cam-face D^4 on the locking-pawl so that it elevates the free end of the latter until the shoulder D^2 is out of the path of the disk B, while a continuation of the turning of said rock-shaft will, subsequently, bring the arm C^2 into engagement with the arm B^3 , whereby the disk B is drawn forward until the latter meets the shoulder D^3 , the arm E being designed to raise the locking-pawl only to a sufficient height to permit the disk B to pass the shoulder D^2 . The object of thus locking the disk B against movement from its normal position is to guard against defective alinement from movement of the disk caused by jars or by excessive pressure on the type-keys while the types bear upon the platen. The mechanism for unlocking the disk is preferably coupled to the shifting-key C' in order to simplify the operation of the machine. An extra key for unlocking the disk prior to shifting by means of the key C' would require a distinct operation. The interval required for releasing the locking mechanism when coupled to the key C' is so slight as to be unnoticeable in operation. In manufacture, the arm E may be entirely hidden behind the frame A and the top plate A' . Operators may operate the machine without noticing from the action the presence of this locking mechanism. A contracting-spring S' may extend from the arm E rearward to the adjacent bracket A^3 for the purpose of returning said arm, rock-shaft C, and key C' to the normal position. It will be observed that the spring S will return said parts toward the normal position until the disk B reaches its rear limit; but said rock-shaft C and arm E are to be moved a trifle farther. This the spring S' is to do. Said spring S' might obviously be applied to said parts in other ways and yet accomplish the same purpose. It is preferable to cause the pawl to make a direct engagement with the type-arm support. This may be accomplished by engaging the edge of the disk B or some rigid projection on the disk. Engagement through a train of mechanism would involve more or less lost motion, which would avoid the rigid locking of the disk.

F F are the carriage-ways. These are arranged parallel to each other over the top of and transversely to the machine in the well-known manner.

G is the platen-carriage. This is a rectangular open frame designed to support the or-

dinary platen in any suitable manner. In the front and rear edges said carriage has a horizontal channel *g* extending from end to end.

5 The ways *F* are preferably composed of two superposed pieces *f* and a hard-metal blade *f'*, placed between the inner portion of said pieces *f* and extending into the channels *g* of the carriage. At suitable intervals antifric-
10 tion-wheels *H* are arranged in the ways *F* and to engage the carriage *G*. One of these wheels and the manner of mounting the same are illustrated in detail in Fig. 5. Each of said wheels has an axle *H'* rigid with said
15 wheel and terminating in cone-shaped ends. Above and below said axle, plugs *H²* are screwed through the pieces *f* in line with the axles *H'*, and each such plug has a cavity *h²*, into which the adjacent end of the axle *H'* ex-
20 tends. All of said plugs may be screwed up and down to give to the wheels *H* an accurate and firm adjustment. The rims of said wheels are to extend into the channels *g* a little farther than do the blades *f'*, in order that the
25 carriage may be supported entirely by said wheels. The purpose of said blades is merely to guide the carriage in removing the latter from or placing it into the ways *F F*. Without these blades the carriage might incline
30 lengthwise when inserted only far enough to bring one pair of wheels into the channels *g*. Thus said wheels might become injured and the insertion of the carriage would be difficult.

35 I claim as my invention—

1. In a type-writer, the combination with the main frame and top plate, of a type-arm support having a central opening located in a horizontal position adjacent to the said top
40 plate and within said frame, of brackets depending from said top plate and upright oscillating supports resting by their lower ends upon said brackets and suitably coupled by their upper ends to said type-arm support,
45 substantially as shown and described.

2. In a type-writer, the combination with the main frame and top plate, of a type-arm support having a central opening and arranged with reference to said top plate, of
50 rockers suitably hinged by their upper ends to said support and confined by their lower ends in channels which are parallel to the planes of said rockers, substantially as shown and described.

55 3. In a type-writer, the combination with the main frame and top plate, of a type-arm support having a central opening and arranged with reference to said top plate, of rockers hinged to said type-arm support by
60 notches and horizontal pins, substantially as described, and brackets supported by said top plate and having each a channel, *a¹*, to receive one of the rockers, substantially as shown and described.

65 4. In a type-writer, the combination with a type-bar support shiftable from front to rear

of the machine, of a rocking member, a key for controlling said rocking member, means for locking said type-bar support in its normal position and means for shifting said type-
70 bar support from its normal position, the former means being located separately from the latter and each leading to and in suitable relation to said rocking support, substantially as described.

5. In a type-writer, the combination with a shiftable support for the type-arms, of a pawl, *D'*, hinged to a stationary portion of the machine and arranged to rest normally in en-
75 gagement with said support, and a rock-shaft, *C*, and key *C'*, of mechanism intervening between said rock-shaft and said locking-pawl and adapted to move the latter out of en-
80 gagement with said support, when said key is operated, substantially as shown and de-
85 scribed.

6. In a type-writer, the combination with a shiftable support for the type-arms, of a locking-pawl, *D'*, rock-shaft, *C*, arm, *E*, arms, *B³*, and *C²*, and key, *C'*, arranged substantially as
90 shown and described.

7. In a type-writer, the combination with a type-arm support which is shiftable from front to rear of the machine, of an automatic locking-pawl having a stop for engaging said
95 support in its normal position and a stop to engage said support when at its limit away from the normal position, and manual mechanism for moving said pawl out of engagement with said support when the latter is in
100 the normal position, substantially as shown and described.

8. In a type-writer, the combination with two parts, namely, a platen and a support for the type-bars, one of said parts being mounted
105 to reciprocate with reference to the other of said parts in a direction at right angles to the axis of the platen, means for effecting the reciprocation and control of said reciprocating part, comprising an upper-case key mechan-
110 ism and a lock mechanism, said lock mechanism directly engaging said reciprocating part to retain it rigidly in position when said upper-case key mechanism is in its normal position, said lock mechanism having a part
115 extending into the path of travel of the upper-case key mechanism whereby the initial shift of the upper-case key mechanism will release the lock mechanism, substantially as described.

9. In a type-writer, the combination with a main frame and with a support whereon all the type-bars are mounted, said type-bar sup-
120 port being sustained so as to be shifted transversely of the main frame, of mechanism for shifting and controlling the position of said type-bar support comprising upper-case key-lever mechanism whereby said support is shifted, and a lock mechanism directly en-
125 gaging said support to retain it in position
130 when the upper-case key-lever mechanism is at rest, said lock mechanism having a part ex-

tending into the path of travel of the upper-case key mechanism, whereby the initial shift of the upper-case key mechanism will operate to release the lock mechanism, substantially
5 as described.

10 10. In a type writer, the combination with the main frame, of a type-bar support mounted in manner free to be shifted transversely of said main frame, key-lever mechanism where-
15 by said type-bar support may be manually shifted and locking mechanism for retaining said support in normal position, said locking mechanism comprising a pivoted pawl having a part adapted to be engaged by said key-le-
ver mechanism during its initial movement

in order to release said locking mechanism, substantially as described.

11. In a type-writer, the combination with the frame of the machine, of the superposed pieces, *f*, *f*, blades, *f'*, wheels, *H*, plugs, *H*², 20 and carriage, *G*, supported by said wheels, substantially as shown and described.

In testimony whereof I affix my signature, in presence of two witnesses, this 28th day of March, in the year 1893.

ZALMON G. SHOLES.

Witnesses:

CYRUS KEHR,
AMBROSE RISDON.