(No Model.)

4 Sheets—Sheet 1.

J. H. HASKINS.

BLANK THREADING AND POINTING MACHINE.

No. 602,506. Patented Apr. 19, 1898.

Fig. 1

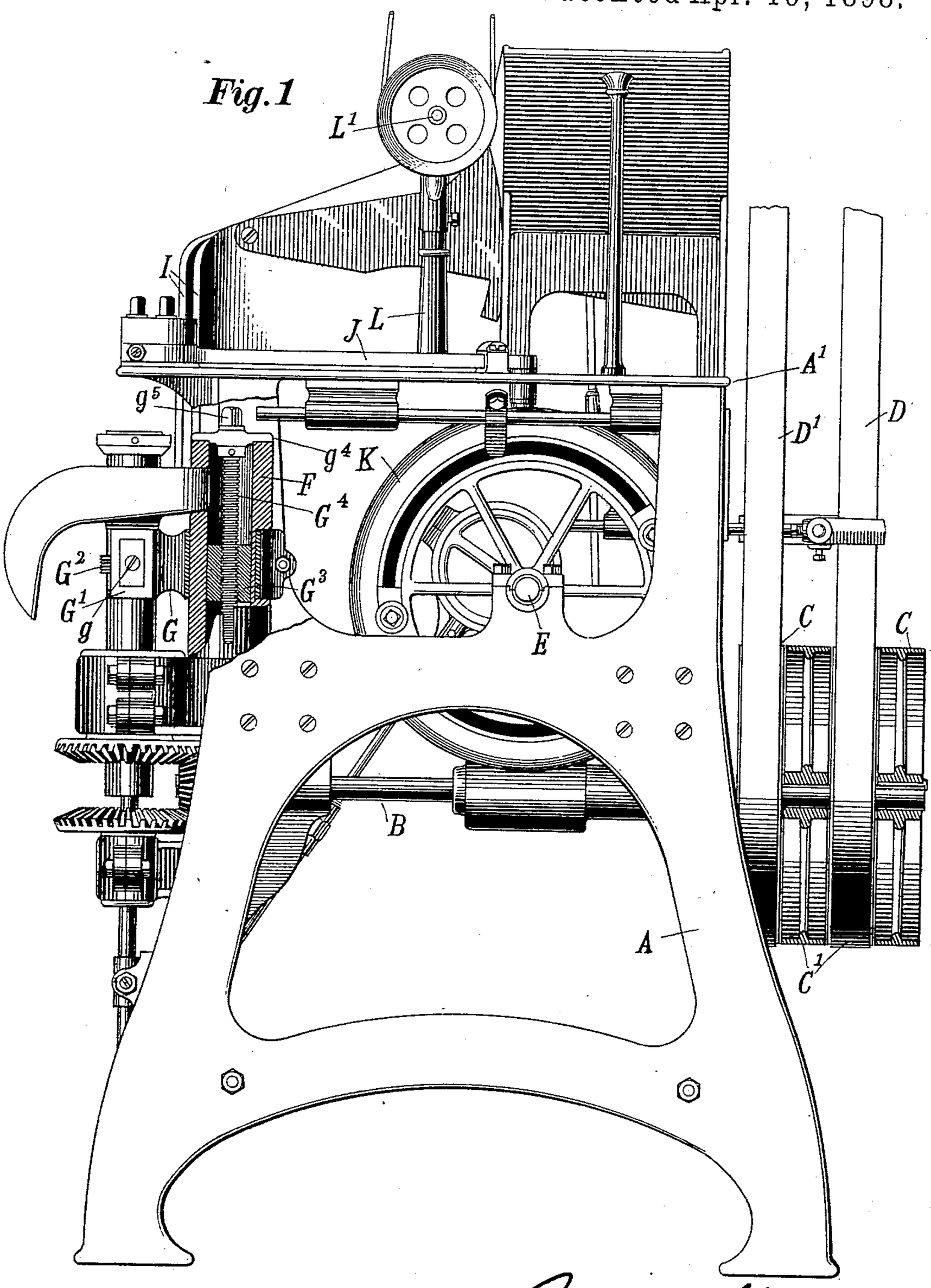

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Fig. 2

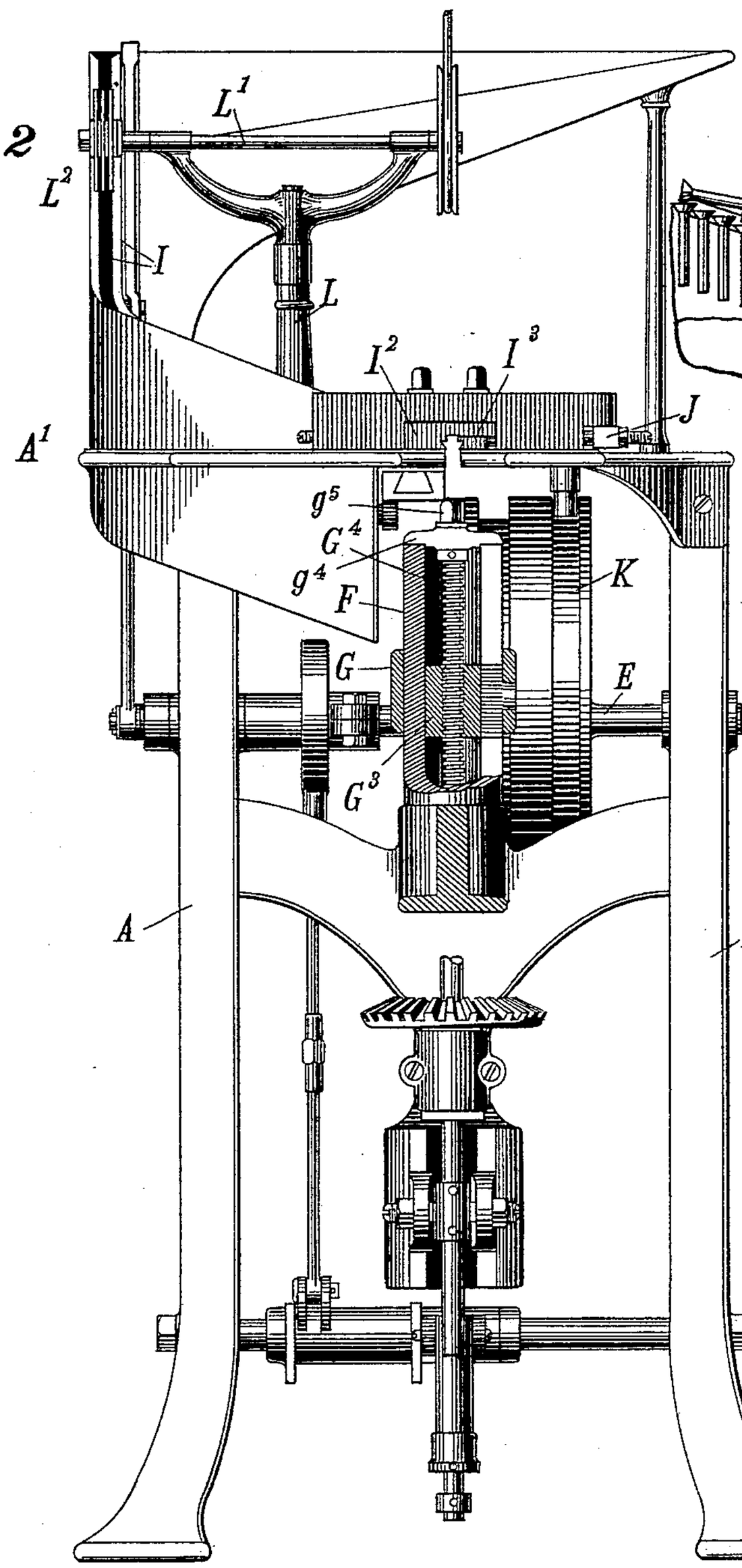

Fig. 7

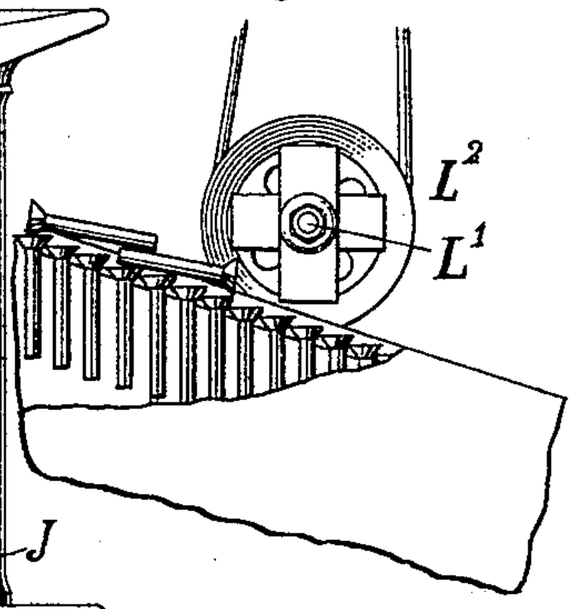

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Fig. 3

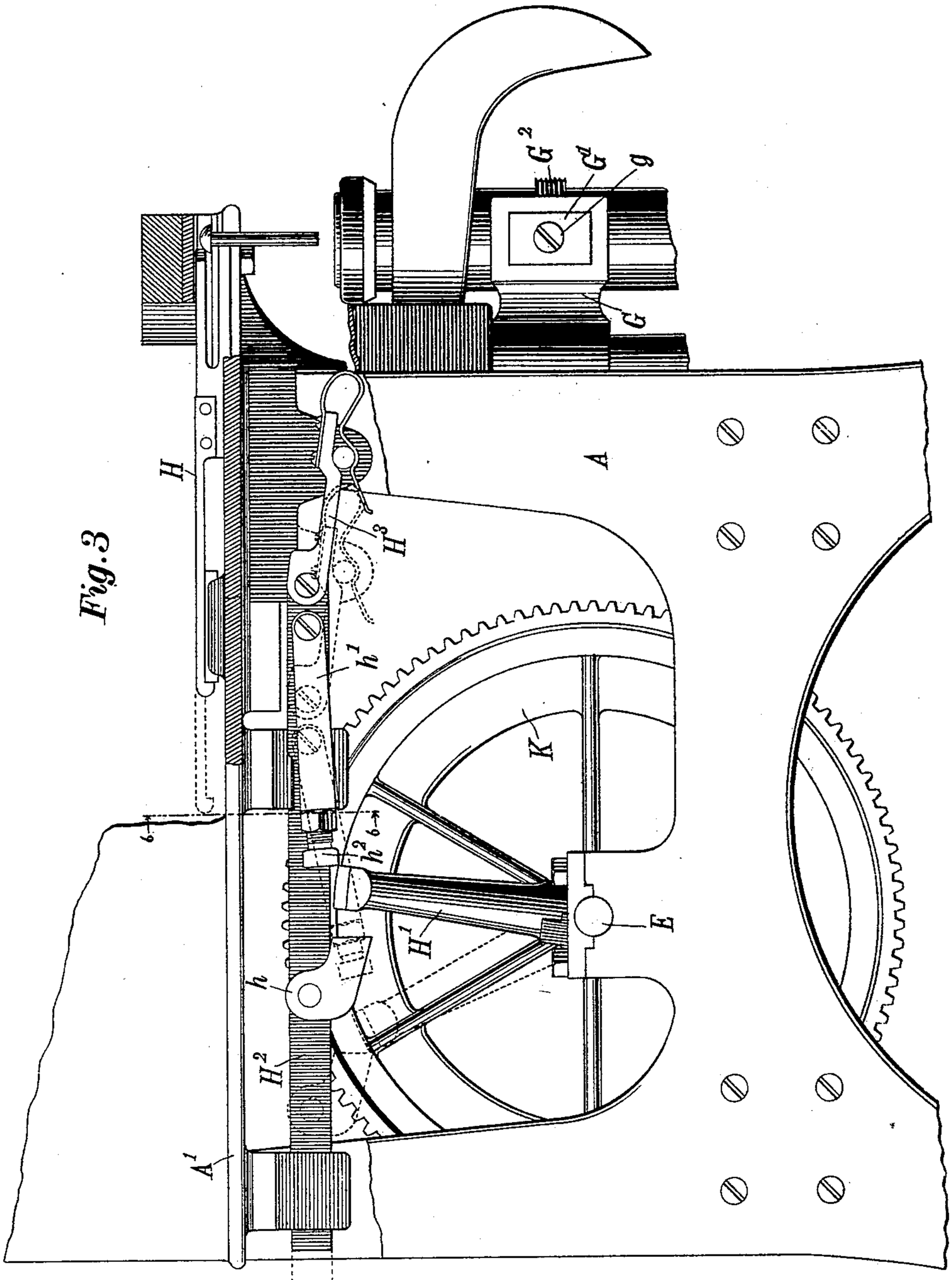

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Fig. 4

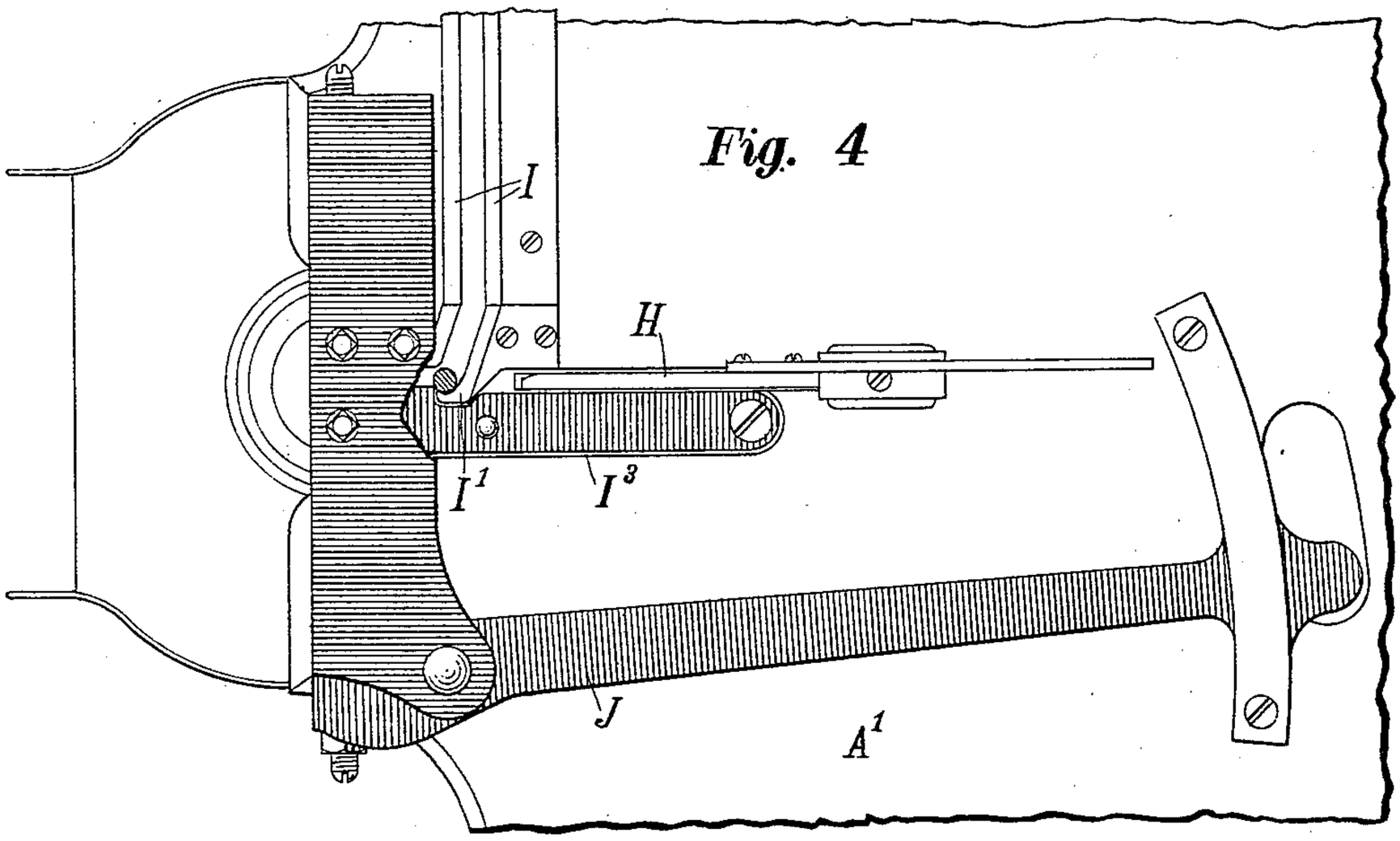


Fig. 5

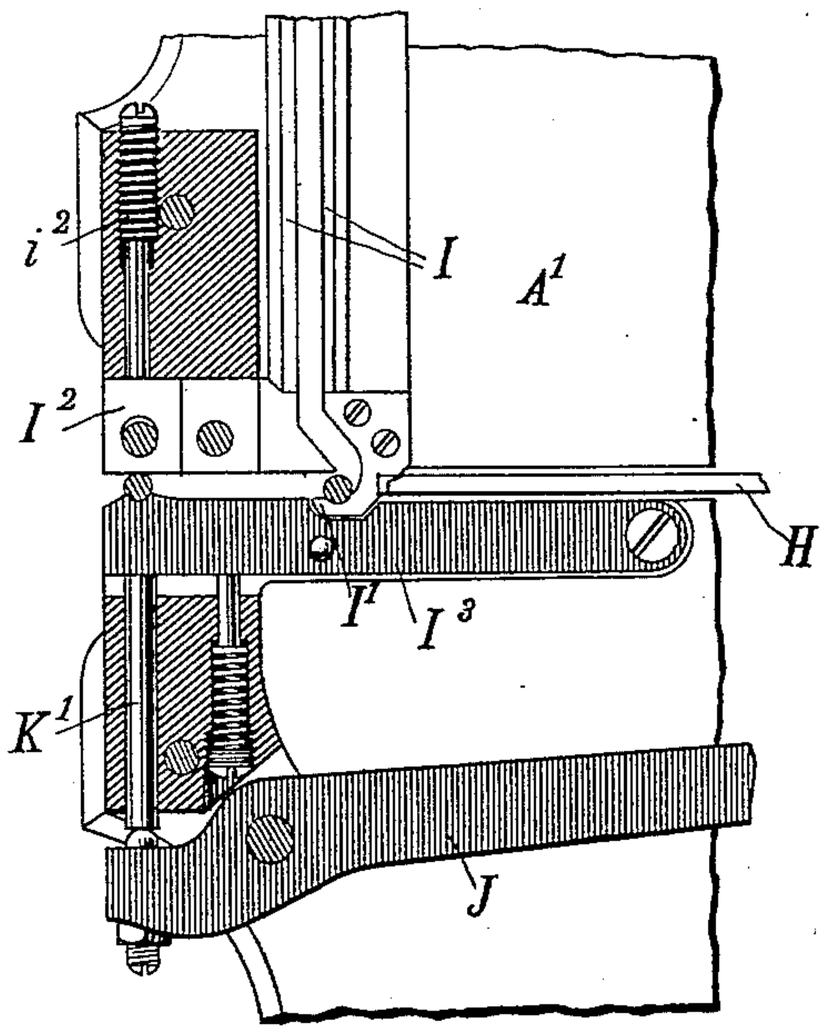
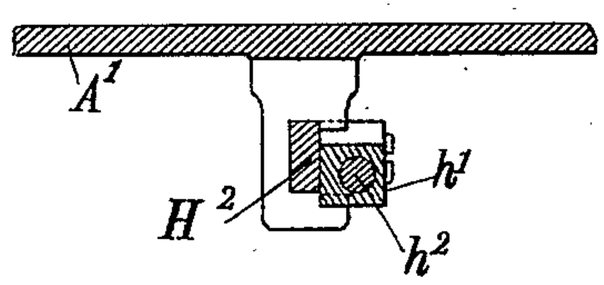


Fig. 6



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UNITED STATES PATENT OFFICE.

JAMES H. HASKINS, OF CHICAGO, ILLINOIS.

BLANK THREADING AND POINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 602,506, dated April 19, 1898.

Application filed May 28, 1896. Renewed February 23, 1898. Serial No. 671,330. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. HASKINS, 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 Blank Threading and Pointing Machines, of which the following is a specification.

My invention relates to improvements in blank threading and pointing machines of the type patented by me March 10, 1896, Serial No. 556,054; and the objects of my improvement are, first, to provide a simple, quickly-operated, accurate, strong, and adjustable device for the tool-carrying spindle, so that blanks of different lengths can be threaded or threaded and pointed in the same machine without dismantling the machine; second, to provide a quick blank-feeder to move the blanks along into position to be acted upon by cutting-tools, which feeder shall be capable of rapid reciprocations, be adjustable, and provided with safety appliances; third, to provide a positive stop in the feed-slot to arrest the stream of blanks that are to be acted upon, so that the blanks will not run ahead in the slot any faster than they are required, and, fourth, to provide a means of preventing the blanks from being loaded upon the walls of the feed-slot and clogging therein. I attain these objects by the mechanisms illustrated in the accompanying drawings and which will be fully described in this specification.

Referring to the drawings, Figure 1 is a side view of the machine with that part of the main frame and stock on which the tool-carrying spindle is supported cut away to show my plan of adjusting the machine for acting upon blanks of different lengths. Fig. 2 is a view in elevation from the front of the machine with the upper part of the tool-carrying spindle broken away, as well as a part of the main-frame stock, in order to show a front view of the same parts illustrated in Fig. 1. Fig. 3 is an enlarged view from the side of the machine to illustrate my improvement in the means of moving the blanks forward in the feed-slot to the position in which they are acted upon. Fig. 4 is a view of the delivery end of the feed-slot, showing the form of the slot to prevent the stream of blanks feeding into the path of the reciprocating plunger too rapidly and also showing the spring-held blank-holder, the adjustable jaw against which the blank is held, as well as the lever and plunger that holds the bolt in position while the blank is being acted upon. Fig. 5 shows a slight modification of the form of the feed-slot, the stream of blanks being retarded by a fixed projection from the walls of the machine, the spring-held lever, however, entering somewhat into the path of the blanks, so as to maintain a spring-pressure upon the blanks from the time they are started forward by the feed-slide. Fig. 6 is a section of the reciprocating bar that moves the feed-slide on the line 6 6 of Fig. 3; and Fig. 7 is a view showing the blanks in the feed-slide, together with a device for preventing the blanks from moving down the feed-slide in an irregular way.

Similar letters refer to similar parts throughout the several views.

The devices for operation upon the blanks are mounted upon a strong framework consisting of open side members A and top A′. Extending horizontally across the machine is the main drive-shaft B, which has fitted to it the fast pulleys C C and the loose pulleys C′ C′. Power is transmitted to this shaft by the belt D, and the parts are reversed by the belt D′. The shaft B carries at its other end a bevel-pinion that actuates the threading and pointing spindles in opposite directions and by the means described in my patent heretofore referred to. The cross-shaft is mounted upon the side members A of the frame and is driven from the main drive-shaft B and is fitted with mechanisms to shift the belts and move the pointing-spindle, as described in my invention to which I have heretofore referred.

Upon the front side member of the frame A a vertical hollow post F is formed, which post has a longitudinal slot in the center. On this post the bearing-block G is placed. This bearing-block has threaded concave removable sections G′, that are held in the block by the set-screw *g*, and the peripherally-threaded flange G^2 on the tool-carrying spindle works therein, and the rotation of the tool-carrying spindle carries the tool to and from its work. The bearing-block G has a central portion G^3, that fits inside the post F. This

part G^3 is connected to the bearing-block G by an extension that moves up and down in the elongated slot in the post F. Quick adjustment of the machine to thread blanks of different lengths is very handy in a machine of this kind, and it has been found that the bearing-block can be adjusted up and down the post, carrying with it, as it does, the spindle and connected parts, only with considerable difficulty, inasmuch as the adjustment must be an exact one. To make this adjustment handy and accurate, a threaded rod G^4 is suspended from a cap g^4, that bears upon the upper end of the post F. A square head g^5 furnishes convenient means for turning the threaded rod G^4, which rod passes through the central portion G^3 of the bearing-block G, which is threaded to correspond with the threads on the threaded rod, and the operator of the machine can thus raise and lower the thread cutting and pointing spindle much more conveniently and can place the bearing-block far more accurately.

One of the main difficulties with automatic bolt-threading machines has been that they were not sufficiently rapid in their movements to do a large amount of work. In the construction heretofore patented by me, the date and number of which patent have been heretofore referred to, the feed-slide H was reciprocated by a pitman eccentrically connected to the cross-shaft E on the machine. This construction required the feeding operation to continue through a long cycle of movement. The bolts were pushed forward very slowly, and the momentum of the machine was not sufficient to discharge the last bolt from the machine. To remedy this, a post H′ has been attached to the cross-shaft E and extended into the path of the pivoted dog *h* on the reciprocating bar H^2, and the adjustable pivoted dog *h′* has also been pivoted upon the same bar. As the cross-shaft E is rotated back and forth by the forward and backward movements of the machine the post H′ strikes the feed-dogs and drives the reciprocating bar quickly back and forth. This bar is connected to the feed-slide H by the safety-pitman H^3. The dog *h′* is formed, as shown in the drawings, with a set-screw h^2, which can be moved in and out of the dog *h′* and the forward throw of the reciprocating feed-slide quickly adjusted. The pivoting of the feed-dog allows the vibrating post to pass beyond it to continue the cycle of the machine to thread and point the bolt, and on its return movement it is lifted and the post passed beneath it, striking the face of the dog that returns the feed-slide, carrying it as far as desired, when the post passes from the dog and continues its movement until the cycle of the machine is completed. In the constructions with which I am acquainted, in bolt feeding and pointing machines in which the bolt is handled pendently, the feed-slide has been operated very slowly, and it has been found difficult to increase the rapidity of operation of the machine, because the feed-slide could not be made to reciprocate with sufficient rapidity to carry the blanks forward and insure their discharge from the machine. In the construction here shown and described this fault is obviated.

In the construction shown and described in my previous invention, heretofore referred to, the blanks were fed into an inclined feed-slot by a reciprocating feed-plate from a hopper and passed along this feed-slot to one stretch of it, where they were taken possession of by a feed-plate and forwarded into a position to be acted upon. Springs were extended across the feed-slot to prevent the stream of blanks moving into it in front of the feed-slide with a greater rapidity than was desired. In practical operation, however, it was found that the blanks, moving by gravity down the feed-slide, would press upon each other, and when the slide was full the spring would be bent back and more than the required number of blanks would enter the stretch of the feed-slot in front of the feed-slide. At times when the feeding device did not keep the slot full the impact of the blanks one upon the other would not be sufficient to retract the spring, and if it was built sufficiently limber so that but few blanks could be supported by it the larger number of blanks would easily bend it back and allow too many blanks to slip into the feed-slot. To remedy this, I have formed the side walls I, that form the feed-slot, in a peculiar manner, as shown in Figs. 4 and 5. It will be seen from these figures that the side walls are bent near where the feed-slot enters the horizontal stretch that leads to the holding-jaws into a somewhat hooked form, as shown at I′. This bend is at the end of the inclined feed-slot, and the blanks sliding down the slot and having to change their direction at this point rest in the rigid hooked portion I′ of the walls and are supported, one only being able to get into that part of the feed-slot in which the feed-slide H reciprocates. A forward movement of the feed-slide will carry this blank along the feed-slot, one side of which is formed by the adjustable holding-block I^2 and the other by the pivoted spring-pressed block I^3. On the retraction of the feed-slide H the stream of blanks will move forward one blank and the operation will be repeated. The rigid hooked part I′ will stand whatever strain is thrown upon it caused by the impact of the blanks, which at times, because of the shaking of the machine and the downward trend of the feed-slot, exert considerable power. The construction shown in Fig. 5 differs slightly from that shown in Fig. 4, inasmuch as the pivoted spring-pressed block I^3 has a shoulder that tends to keep the bolts into the hooked portion of the wall I′. The trend of the feed-slot is toward the delivery of the blank in Fig. 4, while in Fig. 5 it is in the opposite direction. In both constructions, however, the fixed hooked part I′ of the feed-slide supports

the mass of bolts and prevents their moving forward into the path of the feed-slide H more than one at a time. In the construction here shown the pivoted pinch-bar J is operated by the cam in the wheel K, that is mounted on the cross-shaft E of the machine. This pinch-bar works against a sliding bolt K′, which has a bearing against the pivoted spring-pressed block I^3 almost in line with the point where the blank is to be held. The spring-pressed bearing-block I^3 serves in this construction not only as the guide along which the blanks are carried and held by the spring-pressure and not only assists in their discharge by its pivoted end, but forms the jaw through which the pinch-bar exerts its force to hold the blank rigidly while it is being acted upon by the threader and pointer. A set-screw i^2 adjusts the holding-block I^2 as is required.

In the practical operation of blank-feeding devices in which blanks are taken from a hopper by a reciprocating feed-slide and thrown into a feed-slot it is found that the blanks at times will drop into the slot very rapidly and again that they will be so intertwined and mixed that the slot will become empty. If they are thrown in too rapidly, they pile upon each other and soon clog the slot. To remedy these faults, I have placed in a stand L, bolted to the top A′ of the machine, the horizontal shaft L′, which is rotated by a band-wheel and band, and upon this shaft, at a point along the feed-slide, have placed a brush L^2, or other form of retarder, as shown in the drawings, which will throw the blanks back and only allow them to pass down the feed-slide in proper form. This brush can be formed with bristles upon its face, or it can be made, as shown in the drawings, with pieces of sole-leather, set crosswise, and as the part is rotated the blanks that do not enter the feed-slot properly or when they try to run down too fast will be thrown back along the feed-slide and only allowed to pass down in the proper form. The feeding mechanism that lifts the blanks from the hopper onto the feed-slide can thus be made far more aggressive in its feeding capacity, as any overloading of the feed-slide will not clog the slide, and the blank will be thrown back into the hopper or up the slide by the brush, which is being rotated in the opposite direction from that in which the blanks are moving.

I am not aware of any other practical successful automatic blank threading and pointing device in which the blanks are held pendently while being acted upon, and my improvements heretofore described, and illustrated in the drawings, are important in rendering this type of a machine a practical device.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination in a blank threading and pointing machine to form a feeding device for the blanks, a feed-slide, a reciprocating bar mounted in bearings upon the machine, pivoted dogs attached to this bar and the bar connected to the feed-slide, and a vibrating post extended into the path of the dogs on the feed-slide, substantially as and for the purpose specified.

2. In combination in a machine for threading and pointing blanks, to form a feeding device for the blanks, a feed-slide, a reciprocating bar mounted in bearings on the machine-frame, a vibrating post that is vibrated by a moving part of the machine, feed-dogs pivotally mounted on the sliding bar and projecting into the path of the vibrating post, the feed-dog which gives the forward advance of the bar being adjustable, substantially as and for the purpose specified.

3. In combination in a blank feeding and pointing machine, with devices for feeding the blanks, a pivoted spring-pressed blank-holder located beside and forming one wall of the feed-slot, at its delivery end, a pinch-lever that acts upon the pivoted spring-pressed slide at certain intervals in the operation of the machine, whereby the spring-pressed lever becomes not only a guide and a retainer, but also a holder of the blank during the threading operation, substantially as and for the purpose specified.

JAMES H. HASKINS.

Witnesses:
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GEORGE C. BLACKMER.