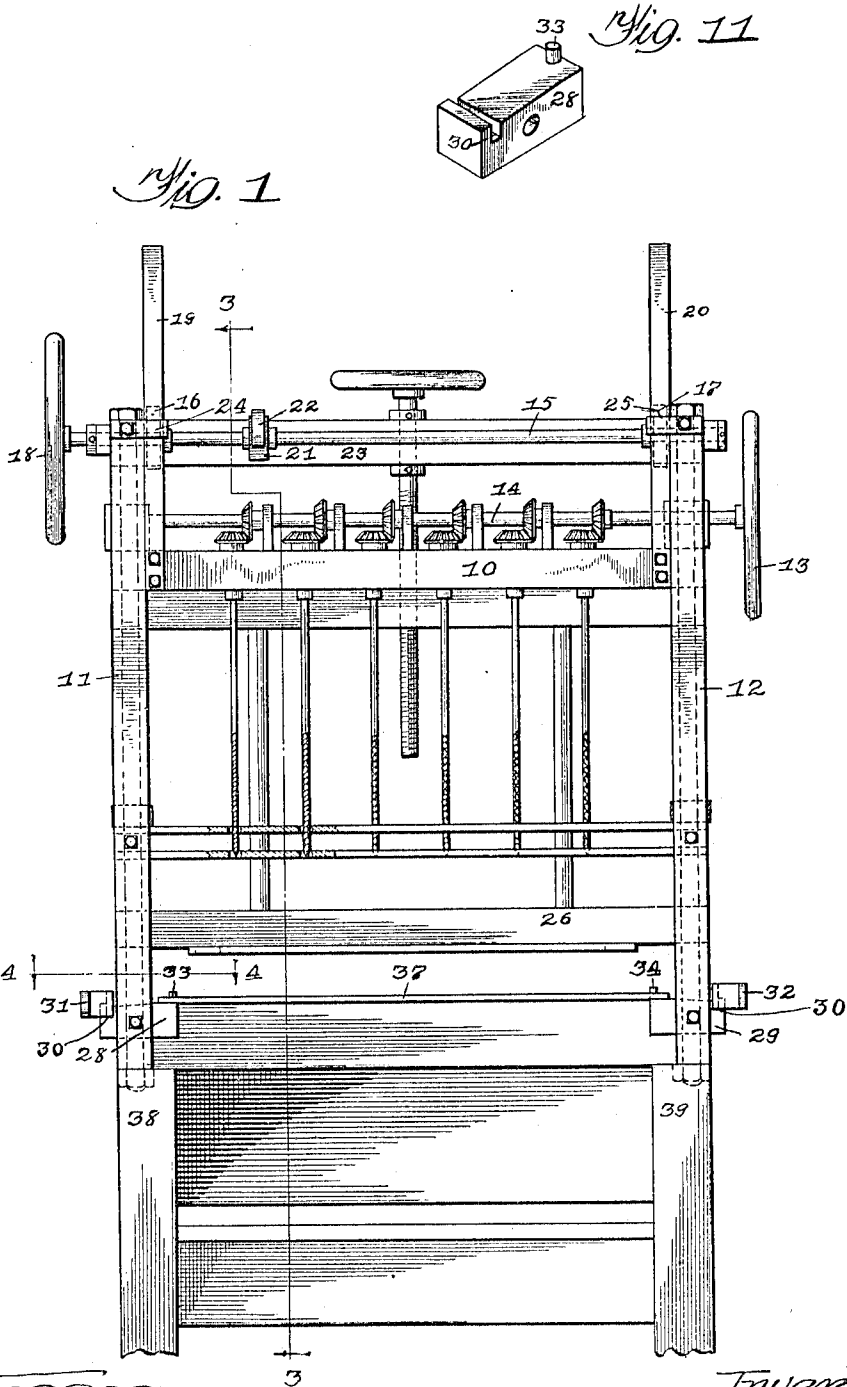


C. F. McBEE.
BOOKBINDER'S PERFORATING MACHINE.
APPLICATION FILED JULY 13, 1908.

949,195.

Patented Feb. 15, 1910.

2 SHEETS—SHEET 1.



Witnesses:
Frank Steiner
G. V. Donaruss Jr.

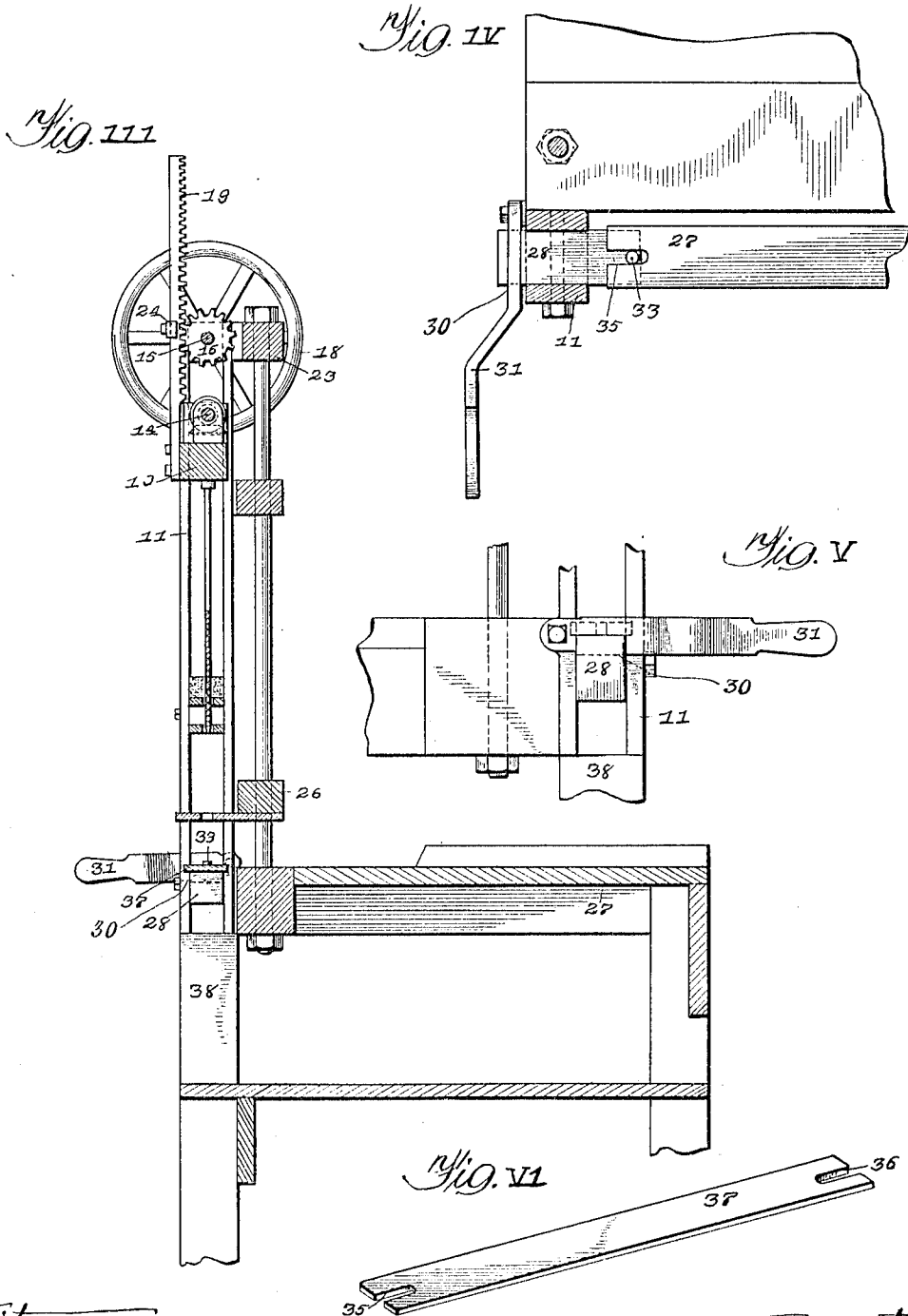
Inventor:
Charles F. McBee
By: Jell & Roe
Atty:

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Atty

UNITED STATES PATENT OFFICE.

CHARLES F. McBEE, OF ATHENS, OHIO.

BOOKBINDER'S PERFORATING-MACHINE.

949,195.

Specification of Letters Patent.

Patented Feb. 15, 1910.

Application filed July 13, 1908. Serial No. 443,333.

To all whom it may concern:

Be it known that I, CHARLES F. McBEE, a citizen of the United States, residing in Athens, county of Athens, and State of Ohio, have invented a new and useful Improvement in Bookbinders' Perforating-Machines, of which the following is a specification.

The object of my invention is to provide an automatic feed for the bits of a perforating machine such as is used by book binders in perforating books preparatory to binding them.

A further object is to provide a means, in a perforating machine, of withdrawing and elevating the bits, after the perforations have been made, so that the bit carrying frame will be in readiness for another operation and at the same time will be removed from the way of the operator in binding the book already perforated or in taking it from the machine.

A further object is to provide such a means for withdrawing and elevating the bits that will not necessitate working the bits backward and which may be easily and quickly operated.

A further object is to provide a support, for the forward hinged portion of the base of the assembly box, which may be easily and quickly withdrawn so that the said end portion may be doubled back, for convenience in binding the book after the perforations have been made.

Another object is to provide such a device in a simple, strong, durable and comparatively inexpensive construction.

My invention consists of certain details of construction hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure I shows a front elevation view of my improved binding and perforating machine; Fig. II shows a detail view of one of the swinging lugs which I employ as supports for the end portion of the assembly box; Fig. III shows a sectional view taken on the line 3—3 in Fig. I; Fig. IV shows an enlarged detail view, in plan, of the swinging lug, lever, and plate which in combination form the support for the end portion of the assembly box, said view being a section taken on the line 4—4 in Fig. I; Fig. V shows a side elevation of the same; and, Fig. VI shows a detail view of the plate I employ.

This invention may be considered as an

improvement to my "perforating and binding machine" for which I filed an application for a patent on the 31st day of March, 1908, and which application is No. 424,359, and the particular application of this improvement to the said device is to provide a means for raising and lowering the bit carrying mechanism and for operating the mechanism which supports the forward part of the assembly box when the same has been placed in the machine.

Referring to the accompanying drawings the reference numeral 10 is used to indicate a bit carrying frame, of the class described in my prior application No. 424,359, said frame being slidably mounted, for vertical movement, in uprights 11 and 12 and the bits being rotated uniformly and simultaneously by the operation of a hand or belt wheel 13.

The numeral 14 indicates the bit driving shaft and all of the mechanism contained in the frame 10 is so constructed as to cause the frame to be capable of an easy movement, up and down, within the uprights 11 and 12. The said uprights 11 and 12 each consists of two parallel members, as illustrated in the sectional view which has been numbered III, and it is between the two members of the uprights that the frame 10 is mounted.

Mounted at right angles, between the uprights 11 and 12 and near their upper extremity is a shaft 15 designed for rotary movement within its bearings.

The numerals 16 and 17 indicate gear wheels (the gear wheel 17 being only shown by the dotted lines in Fig. I) so mounted on the shaft 15 as to assume a position immediately inside of the uprights 11 and 12 respectively.

The numeral 18 indicates a belt or hand wheel mounted on one end of the shaft 15 for the purpose of providing a means for rotating the said shaft.

Projecting upwardly, from each side of the frame 10, and in line with the gear wheels 16 and 17 respectively, are vertical racks 19 and 20 respectively, said racks being provided with teeth on their forward faces, designed to mesh with and be operated by, the gear wheels 16 and 17 respectively on the shaft 15.

The numeral 21 indicates a ratchet wheel rigidly secured to the shaft 15 and the numeral 22 indicates a pawl, mounted to the

upper cross bar 23, of my machine, designed to engage the said ratchet wheel. The ratchet wheel 21 and pawl 22 are so constructed and arranged, with relation to each other, as to permit of an upward movement of the frame 10 but a downward movement is prohibited. However the pawl 22 is loosely mounted upon the cross bar 23 and may be thrown back on the cross bar 23 so as to be out of engagement with the ratchet wheel but the normal position of the said pawl is in engagement with the said ratchet wheel over which it is adapted to ride.

The racks 19 and 20 extend vertically upward from the frame 10, and immediately inside of their respective uprights 11 and 12, and are retained in this alinement by the metal straps 24 and 25 as shown in Fig. I, thus obviously causing no hindrance to the upward or downward movement of the said frame.

The machine for which my construction is designed is provided with a pressure bar 26 and means for operating same, as shown. In practical operation the book to be perforated and bound is placed within the machine and securely held by the pressure bar 26. The operator then throws the pawl 22 upward and backward and out of engagement with the ratchet wheel 21 and, by operation of the hand wheel 18, moves the frame 10 downwardly until the points of the bits rest upon the book to be perforated. The hand wheel 13 is then operated thus rotating the bits and it is obvious that the feed of the bits will be automatic, on account of the weight of the frame 10, all of which is applied to the bits. If for any reason the weight of the frame 10 is not sufficient to provide the desired feed the operator can supply additional pressure by means of the hand wheel 18. When the bits have performed their functions and made the perforations, they are withdrawn therefrom by a reverse movement of the hand wheel 18, which causes the racks 19 and 20 to move upwardly on the gear wheels 16 and 17 respectively. It is obvious that by this means the bit carrying frame is quickly and easily moved upwardly out of engagement with the book which has just been perforated and it is then held in position, by means of the pawl 22, for its next operation.

An experienced operator, becoming thoroughly acquainted with the manner in which my device should be operated, soon becomes so proficient that by the combined manipulation of the hand wheels 13 and 18 he can cause all of the bits to simultaneously make perforations in a book several inches thick within the space of from ten to fifteen seconds. In fact the operation is so very speedy that this device may well be considered as a rotary punch.

In combination with this machine it is

necessary to use an assembly box, in which the book to be perforated and bound is made up, said book remaining therein during the drilling or perforating process and also the binding process. The assembly box should not be removed from the machine after the book has been perforated until the same has been bound and for that reason an assembly box, provided with a forward base portion which is hinged is employed so that the forward portion may be dropped downwardly and out of the way for the binding process. The assembly boxes which I employ are of the class described in my prior application which was filed on the 31st day of March, 1908, and is numbered 424,358, and also of the class which is described in my application for a patent for a binding machine of even date with this application and whose Serial Number is 443,334. In the present machine it is necessary to provide a means for supporting the forward portion of the base on an even plane with the body of the base, when the assembly box is in the machine and while the perforations are being made. It is also necessary to provide a means for withdrawing that support so that the forward portion of the box may drop downward so as to permit of threading twine through the perforations. To this end I have provided, for my machine, a table 27 the forward edge of which is at a point immediately in the rear of, and flush with, the rear member of the parallel uprights 11 and 12 respectively, and when the assembly box is in the machine the hinged portion is designed to be in line with, or slightly in advance of, said forward edge of said base. Between the members of the uprights 11 and 12 respectively and immediately below the plane of the table 27, I have mounted swinging lugs 28 and 29 respectively, said lugs being adapted for pivotal movement on their bearings and each being of a sufficient length to project inwardly toward each other, for a short distance beyond the uprights 11 and 12 respectively, and also to project outwardly beyond their respective uprights, as fully illustrated in Fig. I. In that portion of the lug which extends outside of the uprights 11 and 12 respectively I have provided a longitudinal channel 30 which is designed to be engaged by a lever 31 or 32 respectively, secured to their respective sides of the machine and by this means the lug is designed to be held rigidly in its normal position, at right angles to the uprights 11 and 12, as shown. Centrally located on the upper surface and at the inner extremity of the lugs 28 and 29 are raised portions, 33 and 34 respectively, which are designed to be received by slots 35 and 36 in the ends of the bar 37 which is designed to rest upon the lugs 28 and 29 in a horizontal position and

in line with the table 27, when the parts of my device are resting in their normal positions. When the book has been perforated the operator pulls the levers 31 and 32 upwardly and the inner ends of the lugs 28 and 29 swing downwardly, from their pivotal bearings, on account of the fact that their securing means has been withdrawn and the weight of the bar 37 forces them downwardly. The bar falls off of the lugs 28 and 29 and rests upon the uprights 38 and 39 respectively. The lugs are now completely out of the way because by their construction their width is less than the width of the members forming the uprights 11 and 12 respectively, and when they have been released they fall downward and assume positions between the members forming the uprights 11 and 12 respectively. The operator then picks up the bar 37 and lays it aside and bends the forward hinged portion of the base of the assembly box, which is not shown in these drawings as this is not a part of this application, downwardly so it will be out of the way for the binding. After the book has been taken out of the machine the parts are then returned to their normal position so that they will again be ready for operation.

Having thus described my invention what I claim and desire to secure by Letters Patent of the United States is:

1. A perforating machine comprising in combination with a plurality of perforating devices, and means for supporting the articles to be perforated, a frame carrying said devices, uprights in which said frame is reciprocated, means for reciprocating said frame, means for stopping said reciprocating means at any point on the upward movement of the reciprocation, and means carried by said uprights for removably holding said supporting means below said articles.

2. A perforating machine comprising in

combination with a plurality of perforating devices, and means for supporting the articles to be perforated, a frame carrying said devices, uprights in which said frame is reciprocated, means for reciprocating said frame, means for stopping said reciprocating means at any point on the upward movement of the reciprocation, means carried by said uprights for removably holding said supporting means, and a table to receive said articles after perforation.

3. A perforating machine comprising in combination with a plurality of perforating devices, and means for supporting the articles to be perforated, a frame carrying said devices, uprights in which said frame is reciprocated, means for reciprocating said frame, means for stopping said reciprocating means at any point on the upward movement of the reciprocation, said reciprocating means comprising a shaft parallel to said frame, gears carried thereby, and racks operably connecting said frame and said gears, and means carried by said uprights for removably holding said supporting means from below said articles.

4. A perforating machine comprising in combination with a support and uprights, perforating mechanism and a pressure bar slidable within said uprights, a lug mounted for pivotal movement at the lower extremity of each of said uprights, said lugs each having a transverse channel formed therein, levers secured to the sides of the supports and adapted to engage said channels to maintain said lugs in horizontal position, projections carried by the upper faces of said lugs, and a bar having a recess in each of its ends supported by said lugs and having said recesses in engagement with said projections.

CHARLES F. McBEE.

Witnesses:

INEZ B. ALEXANDER,
MABEL CODDING.