

No. 739,991.

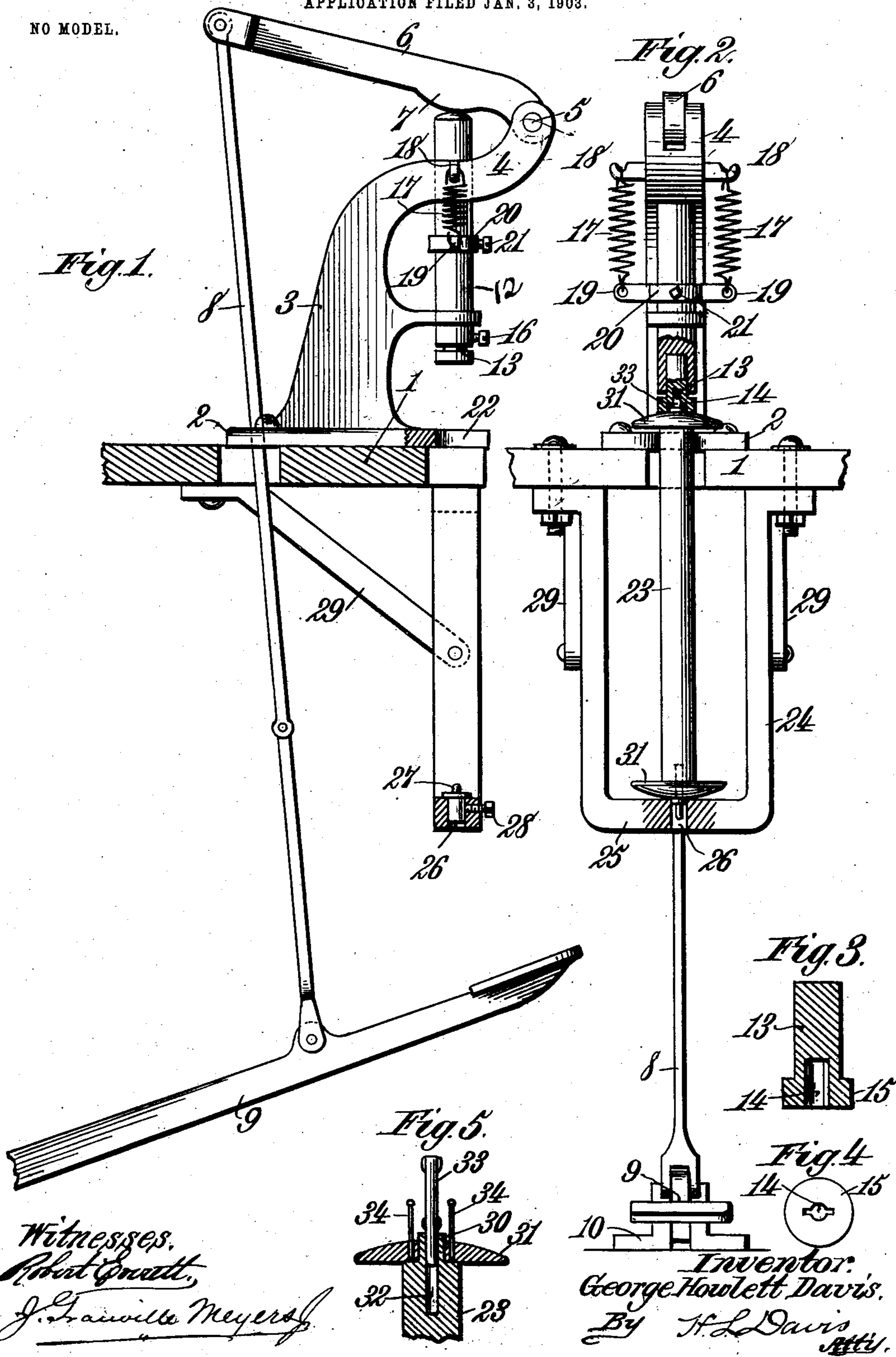
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G. H. DAVIS.

MACHINE FOR SECURING END CAPS AND JOURNAL PINS TO MUSIC ROLLS
OR SPOOLS.

APPLICATION FILED JAN. 3, 1903.

NO MODEL.



UNITED STATES PATENT OFFICE.

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MACHINE FOR SECURING END CAPS AND JOURNAL-PINS TO MUSIC ROLLS OR SPOOLS.

SPECIFICATION forming part of Letters Patent No. 739,991, dated September 29, 1903.

Application filed January 3, 1903. Serial No. 137,685. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HOWLETT DAVIS, a citizen of the United States, residing at Llewellyn Park, West Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Securing End Caps and Journal-Pins to Music Rolls or Spools; 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.

My present invention relates to a machine for securing the heads and journal-pins to the ends of spools for perforated music-sheets such as used in connection with self-playing musical instruments; and it has for its object to provide a machine of this character that will at once be simple in construction, easy of operation, and cheap to manufacture.

As is well known in the art, perforated music-sheets for self-playing musical instruments are usually wound upon a spool having end caps or heads and journal-pins, which journal-pins serve to permit the spools to be removably inserted in socket-bearings in the self-playing instrument. Heretofore and prior to this invention it has been the custom to first nail the end caps or heads upon the ends of the spool proper and then drive in the journal-pins, these operations being performed separately by hand.

It is the purpose of this invention to provide a machine that will simultaneously force or press the nails that secure the end caps or flanges and the journal-pins in position upon the ends of the spool without liability of splitting the said caps, which is an objection present in the hand-nailing operation as heretofore practiced.

Briefly and generally stated, the machine comprises a supporting and centering device for the spool, a plunger having a driving-head constructed to engage and press the nails through the end cap into the end of the spool and to simultaneously force a journal-pin in place, and means, such as a foot-treadle or other similar device, for operating the plunger.

In order to enable others to understand, make, and use my said invention, I will now

proceed to describe the same in detail, reference being had for this purpose to the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of a machine constructed according to this invention. Fig. 2 is a front elevation, partly in section, showing a spool in position in the machine, the nails and journal-pin having been forced home. Fig. 3 is a detail sectional view of the driving-head detached from the plunger. Fig. 4 is a bottom plan view of the same. Fig. 5 is a section of one end of a spool, showing the nails and journal-pin in position to be driven home.

Referring to the drawings, the reference-numeral 1 designates a table of any suitable construction upon which the base 2 of the machine-frame may be bolted. Rising from the base 2 is a standard 3, having a forwardly-projecting portion 4, to the end of which is pivoted at 5 a power-lever 6, having upon its under side a working face or cam 7. To the free end of the lever 6 is pivoted a rod 8, which extends down through an opening in the table and having its lower end linked to a foot-treadle 9, one end of which is pivoted to a suitable support 10. Arranged to move vertically in suitable bearings in the standard 3 is a plunger 12, having a socket in its lower end into which is removably inserted a driving-head 13, said head having an opening 14 to receive the projecting end of the journal-pin to be driven in the spool and a flat driving face or rim 15 to engage the nails. The said driving-head 13 is secured in position in the plunger by means of a set-screw 16. The plunger 12 is normally held elevated by means of springs 17, having their opposite ends attached to projections 18 and 19 on the standard and plunger, respectively. The projections 19 on the plunger are carried by a collar 20, adjustably secured to the plunger 12 by means of a set-screw 21.

The base 2 of the machine-frame is provided at its front portion, directly below the driving-head 13, with a cut-out portion or open slot 22 to receive one end of the music-roll 23 during the driving or forcing operation. Bolted to the under side of the table 1 is a U-shaped bracket 24, having in the horizontal portion 25 thereof an opening 26, which

opening is in true vertical alinement with the opening 14 in the driving-head 13. The opening 26 in the horizontal portion 25 of the U-shaped bracket 24 is adapted to receive
 5 in a removable manner a centering-pin 27, said pin being held in position by means of set-screw 28. The purpose of this pin will be presently explained. The U-shaped bracket 24 is preferably braced by means of arms 29,
 10 secured to the sides of the bracket and the bottom of the table, respectively.

The music-spool comprises a roll proper, 23, having at its opposite ends tenons 30, over which fit the end caps or heads 31, said caps being provided with suitable openings to receive the tenons 30. Extending through each tenon 30 and for a short distance into the end of the roll 23 is a bore 32, adapted to receive the journal-pins 33, it being understood that
 20 there is a cap and a journal-pin secured to each end of the roll, the said caps being secured or fastened in position upon the ends of the roll by means of nails 34.

The operation of the machine is briefly as follows: Let it be assumed that an end cap 31 has been applied to one end of a roll 23 and that a journal-pin 33 and nails 34 have been placed in position to be forced home, as shown in Fig. 5. The spool in this condition,
 30 with an end cap fitted to one end thereof only, is placed in the machine so that the journal-pin and nails will lie directly below the driving-head 13 and the opening 32 in the tenon 30 at the lower end of the spool placed over the centering-pin 27, carried by the bracket 24. By depressing the treadle 9 it will be seen that the plunger will be forced down, bringing the driving-head 13 into contact with the nails 24 and with the journal-pin 33, forcing them home at one and the same time. During this operation it will be seen that the spool 23 is centered and held in true alinement by means of the centering-pin 27, the slot 22, and the opening 14 in the driving-head. Consequently the journal-pin and nails will be forced into place with accuracy. After applying end caps to one end of a number of spools the centering-pin 27 is removed, leaving the opening 26 free to receive the journal-pins 33 that have been thus inserted in the spools to act as centering means when the other end caps are being applied.

I do not wish to be understood as limiting myself to the precise details of construction herein shown and described, as various changes may be made without departing from the spirit of the invention.

Having thus described my invention, what
 60 I claim is—

1. In a machine of the character described, the combination with means for centering and supporting one end of a spool and means for embracing the spool near its other end to hold the same against lateral movement, of a plunger movable in the direction of said centering means, a driving-head carried by

said plunger, and means for operating the plunger.

2. In a machine of the class described, the combination with means for centering and supporting one end of a spool, of a plunger movable in the direction of said centering means, a driving-head carried by the plunger and provided with an opening in one end, means for embracing the spool at its other end to cause the journal carried thereby to enter the opening in the driving-head when the plunger is caused to descend, and means for operating the plunger.

3. In a machine of the character described, the combination with means for supporting and centering one end of a spool, of a reciprocatory plunger, a driving-head carried by said plunger and having an opening to receive a journal-pin, and means for actuating the plunger.

4. In a machine of the character described, the combination with a base-frame having an open slot to receive a spool, of a support for one end of a spool arranged in line with said slot, a reciprocatory plunger movable to and from said slot and support, and means for reciprocating the plunger.

5. In a machine of the character described, the combination with a base having an open slot to receive a spool, of a bracket arranged in line with said slot, centering means for one end of a spool carried by said bracket, a reciprocatory plunger movable in line with said centering means, and means for reciprocating the plunger.

6. In a machine of the character described, the combination with a reciprocatory plunger carrying a driving-head, said head being provided with an opening to receive a journal-pin, of a bracket located below and in line with said plunger, centering means for one end of a spool carried by said bracket, and means for reciprocating the plunger.

7. In a machine of the character described, a base-frame provided with means for embracing a spool to hold the latter against lateral movement, a plunger mounted to reciprocate in guides carried by the frame, a driving-head of the character described carried by the plunger, a bracket located below the plunger and having an opening therein arranged in line with the driving-head, and a centering-pin for a spool removably mounted in said opening in the bracket.

8. In a machine of the character described, the combination with a base-frame having an open slot at its front edge adapted to receive a spool, of a plunger mounted to reciprocate vertically in guides carried by said frame, a U-shaped bracket mounted below said base-frame, centering means for a spool carried by said bracket, a lever for actuating the plunger, and means for operating said lever.

9. In a machine of the character set forth, the combination with a base-frame having an open slot at its front edge adapted to receive a spool, of a plunger mounted to reciprocate

in guides on said frame, a driving-head carried by the plunger, a U-shaped bracket mounted below said base, a centering-pin for a spool removably mounted in an aperture
5 in said bracket, a lever for actuating the plunger, and a foot-treadle having a connection with the lever.

In testimony whereof I affix my signature in presence of two witnesses.

G. HOWLETT DAVIS.

Witnesses:

H. B. SEYMOUR,
HOWARD L. LANE.