No. 890,340. PATENTED JUNE 9, 1908.

G. H. DAVIS.

PAPER TRIMMING MACHINE.

APPLICATION FILED NOV. 21, 1906. RENEWED NOV. 21, 1907.

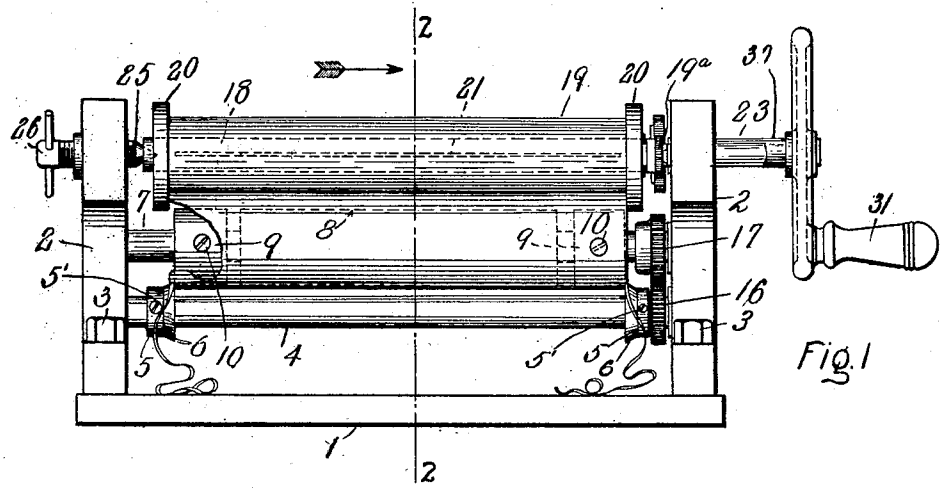


Fig. 1

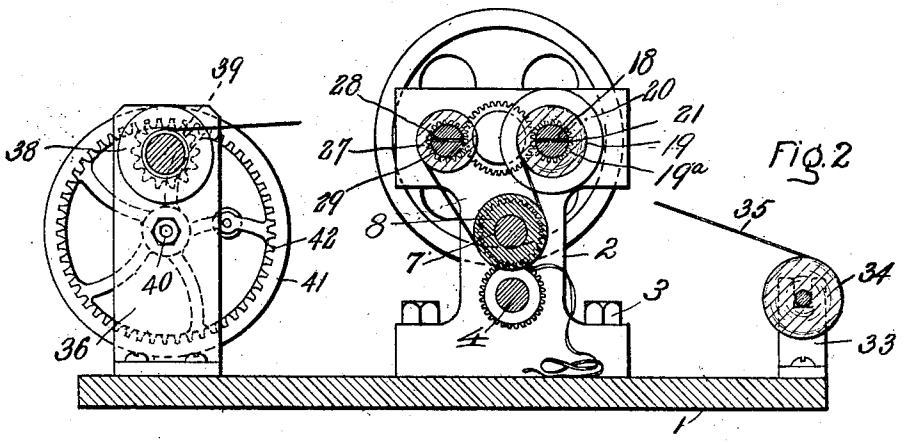
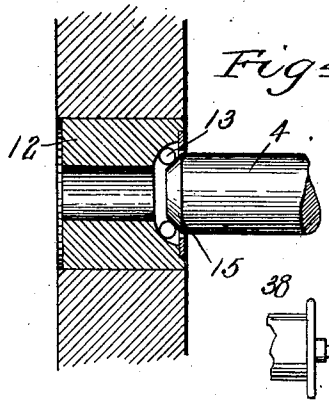


Fig. 2

Fig. 4.



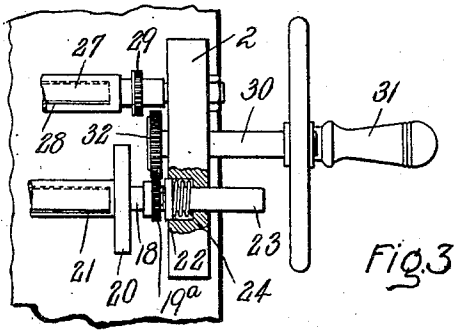


Fig. 3

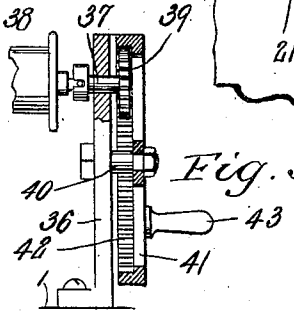


Fig. 5

Witnesses:
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Inventor.
G. Howlett Davis,
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Att'ys.

UNITED STATES PATENT OFFICE.

GEORGE HOWLETT DAVIS, OF WEST ORANGE, NEW JERSEY, ASSIGNOR TO STANDARD MUSIC ROLL COMPANY, A CORPORATION OF NEW JERSEY.

PAPER-TRIMMING MACHINE.

No. 890,340. Specification of Letters Patent. Patented June 9, 1908.

Application filed November 21, 1906, Serial No. 344,410. Renewed November 21, 1907. Serial No. 403,191.

To all whom it may concern:

Be it known that I, GEORGE HOWLETT DAVIS, a citizen of the United States, residing at West Orange, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Paper-Trimming Machines, of which the following is a specification.

This invention relates to certain new and useful improvements in paper trimming machines and is designed more especially to accurately trim opposite edges of a sheet or web, such for instance as perforated music sheets or webs commonly employed in connection with self-playing musical instruments.

The invention has for its objects to provide a simple and convenient machine for the purpose at hand designed to be readily and quickly adjusted to trim sheets or webs to any desired width, the cutting mechanism being adjustable for this purpose.

A further object of the invention is to provide a rewinding mechanism associated with the trimming mechanism for transferring the trimmed strip to the music spool or bobbin in proper position and ready for use in a self-playing musical instrument.

The invention comprises the features of construction and combinations and arrangements of parts hereinafter set forth in detail and then more definitely pointed out in the appended claims which form a part of this specification.

In the appended drawings in which one embodiment of the invention is illustrated, Figure 1 represents an end view of the machine. Fig. 2 is a vertical longitudinal section taken on the line 2—2, Fig. 1, looking in the direction of the arrow Fig. 1. Fig. 3 is a top plan view of a part of the winding mechanism. Fig. 4 is a horizontal sectional view of one of the end bearings for the cutter shaft and bed roll. Fig. 5 is a detail view of the operating mechanism for one of the rewinding spindles.

Referring now to the drawing the reference numeral 1 designates a base plate or board from opposite sides of which rise substantially T-shaped standards 2, said standards being secured to the base by means of screws 3. Journaled in the lower part of the standards 2 is a cutter shaft 4, said shaft having loosely and adjustably mounted thereon two collars 5, each provided with an inwardly directed annular cutting blade 6. The collars 5 are retained, in adjusted position upon the shaft 4 by means of set screws 5′. A shaft 7 is also journaled in the standards 2 directly above the shaft 4, said shaft 7 carrying a sleeve or drum 8 and two adjustable collars 9, one at either end of the sleeve. These parts will be hereinafter referred to as the bed-roll. The collars 9 are adjustably mounted on the shaft 7 and may be secured in adjusted position by means of set screws 10. The end bearings for the shafts 4 and 7 are preferably of the ball bearing type, such for instance as shown in section Fig. 4. In the instance shown the bearings consist of an annular ring 12 having a cavity in which an annular series of balls 13 are placed and against which bears the conical end 15 of the shaft 4 or the shaft 7 as the case may be. Intermeshing gears 16, 17 are fixed upon the shafts 4 and 7 respectively, and are arranged so that when the shaft 7 is rotated motion will be imparted to the shaft 4 and the cutters carried thereby in the manner presently to be described.

The reference numeral 18 designates a shaft journaled in the upper part of the standards 2 intermediate, but above and out of line with the shafts 4 and 7, said shaft 18 carrying a delivery spool 19 having flanges 20 and a longitudinal slit 21 to receive one end of the sheet or web to be trimmed. This shaft 18 has fixed thereto a gear 19ª—and is provided at its opposite ends with conical recesses. In one of said recesses, in the instance shown at the right hand end of the roll, a conical bearing 22 projects, said bearing being mounted upon a pin 23 normally urged forward by a spring 24 seated in a cavity in the standard 2. A conical pin 25 enters the conical recess in the opposite end of the shaft 18, said pin having a screw threaded connection with one of the uprights 2 and being also provided with a handle portion 26 by which the conical bearing may be adjusted as desired. A receiving shaft or roll 27 similar to the shaft 18 and arranged in line therewith, is also journaled in a similar manner in the standards 2, said shaft or roll 27 having a longitudinal slit 28 and a gear 29, said gear being out of line with the gear 19ª on the shaft 18 for the purpose presently to be described. Journaled in one of the standards 2 at a point between and in line with the shafts 18 and 27 is a stub-shaft

30 carrying a crank 31 at its outer end and a gear 32 at its inner end said gear being arranged to be brought into mesh with either the gear 19[a] or the gear 29 as desired, the shaft 30 being longitudinally slidable in the standard 2 to permit the operation just described.

At the front end of the base board 1 is arranged a pair of open bearings 33 to receive a spool as 34 carrying the web or sheet 35 to be trimmed. In the operation of the machine one end of the sheet 35 to be trimmed is first inserted into the longitudinal slit 21 in the delivery spool 19 and the said spool is then rotated through the shaft 30, gear 32 and gear 19[a] so as to wind the sheet or web thereon. One end of the sheet is then passed over the sleeve 8 and collars 9, of the bed roll the collars having been properly adjusted to the width it is desired to trim the sheet or web, and the end thereof is then inserted in the slit 28 in the receiving roll 27. The cutters 6 are then properly adjusted relatively to the collars 9, and the gear 32 having been brought into mesh with the gear 29 the shaft 27 is then rotated, which, through frictional contact with the sheet or web with the sleeve 8 and collars 9 causes the shaft 7 to rotate thus transferring motion through the gears 16 and 17 to the cutter shaft 4 and resulting, during the rotation of the shaft 27, in the sheet or web being wound upon the latter and simultaneously trimmed at its opposite edges during its travel from the delivery spool to the receiving roll. During this operation it will be seen that the web or sheet is delivered to the shaft 27 in such manner that the free end thereof will be the rear end, or in other words, if the sheet or web be a perforated music sheet, the free end will represent the rear end of the piece of music. These music sheets or webs are then transferred to a music spool and are sold to the trade upon such spools. The trimming machine forming the subject of the present application has associated therewith, a convenient rewinding means whereby the trimmed sheet or web may be wound upon its own spool with the proper end first ready for use in a self-playing musical instrument. This associated spooling means will now be described.

Rising from the rear end of the base board 1 at opposite sides thereof are two standards 36 each having journaled therein a rotary spindle 37 carrying an end bearing for the music spool 38, one of said bearings being shown in detail in Fig. 5 from which it will be seen that the said bearing carries a pinion 39. Also journaled in one of the standards 36 is a stub-shaft 40 carrying a wheel 41 having an internal gear 42 meshing with the pinion 39 and also provided with a crank 43. Obviously by rotating the wheel 41 rotary motion will be transmitted to the spool 38 whereby the trimmed sheet may be transferred from the receiving roll 27 to the spool 38.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a machine of the character described, a delivery spool, a receiving roll, a gear wheel on the shaft of each said spool and said roll, edge-trimming means for a strip or web, a longitudinally movable stub shaft, and a gear on said shaft adapted to be brought into mesh with either the gear on the delivery spool or the gear on the receiving roll.

2. In a machine of the character described, a delivery spool, a receiving roll, means for rotating the receiving roll and edge trimming means for a strip or web comprising a sectional bed roll the sections of which are of equal diameter and rotary cutters coöperating with the end sections of the said bed roll.

3. In a machine of the character described a delivery spool, a receiving roll, means for rotating the receiving roll, edge-trimming means for a strip or web comprising intergeared shafts carrying, respectively, a sectional bed roll and a pair of rotating cutters coöperating with the end sections of said bed rolls.

4. In a machine of the character described, a delivery spool, a receiving roll, means for rotating the receiving roll, and edge-trimming means for a strip or web comprising two shafts one having a pair of rotary cutters adjustably mounted thereon and the other provided with a sleeve and adjustable collars at opposite ends thereof coöperating with the said cutters.

5. In a machine of the character described, a delivery spool, a receiving roll, means common to both said spool and roll for positively rotating either independently of the other, and rotary edge-trimming means for a strip or web comprising a pair of parallel shafts, a pair of cutters adjustably mounted upon one of said shafts, a sleeve and a pair of collars adjustably mounted upon the other shaft.

6. In a machine of the character described a flanged delivery spool having a longitudinal slit, a receiving roll having a longitudinal slit, edge-trimming means for a strip or web arranged below said spool and roll, and means for rotating the receiving roll.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE HOWLETT DAVIS.

Witnesses:
J. GRANVILLE MEYERS,
GERTRUDE M. STUCKER.