

## The Haughawout Book-Punching Machine\*

Terry Haughawout

Ken Smith built the first book-punching machine in the early 1970s. He developed it from photos from Bower's "Encyclopedia" and then designed his own. Ken was motivated by Jack Hewes (Washington State), who was the first organ enthusiast to make cardboard book. Once Ken found out that this was possible, he developed his own punching machine (Figure 1).

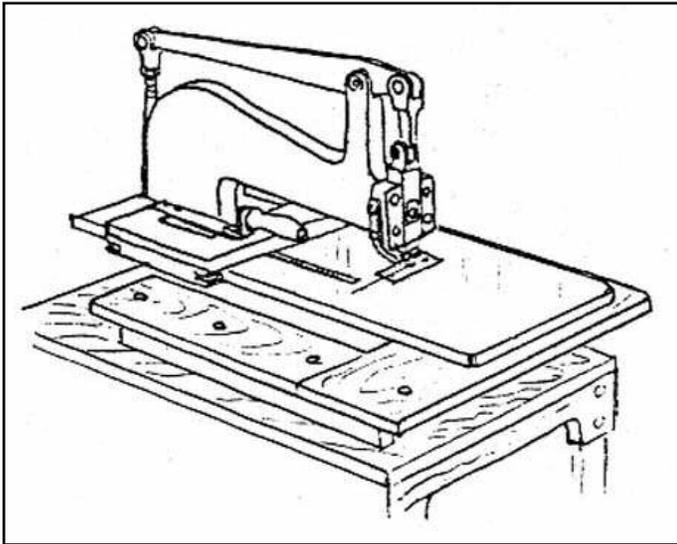


Figure 1. A conceptual drawing by Ken Smith in the early 1970s.  
Courtesy: Ken Smith archives.

At the same time he was punching book music I had just bought my Bruder fairground organ. Dan Slack and I would often go down to watch Ken working with his own organ and punching machine. I took information on my Bruder (it was playing Wurlitzer Style 150 music at the time) to Ken, who then informed me it was a Wilhelm Bruder, Model 79. He recommended that I should put it back to original (playing Bruder books) to make it sound right.

It was at this time that I needed book music. I asked Ken if I could have a set of the seven prints (Figure 12 & 13) that Ken had made of his punch machine in March, 1973, to make a punch for myself. As I was in the process of making the punch, Dan and Fred Dahlinger also wanted a punch. We then built three of them. The Precision Carbide Company

in Bloomdale, Ohio made these. Fred and I still have our punch machines (Figure 2).

Once the punch was set up, tables were made to flank it making it easier to punch music. Soon the word was out about the punch machine and I received many requests to make more punches. I received permission from Ken to do this (I can remember him saying, "make all you want—copying is a form of flattery"). This was the start of my punch-making business. Three more were made at Precision Carbide before I tooled up for this and eventually 20 were made in my own mechanical music shop.



Figure 2. Haughawout punch #3 in the collection of Fred Dahlinger.  
Photo: Fred Dahlinger.

The first six punches were made from 1980 to 1982. In 1985 we started the first of the 20 at T & J Antiques (Bloomdale) and the remaining were made

\*This article was written in the fall of 2004 and reviewed by Ken Smith during the first phase of his short illness.

## *A Description of the Book Punch Machine*

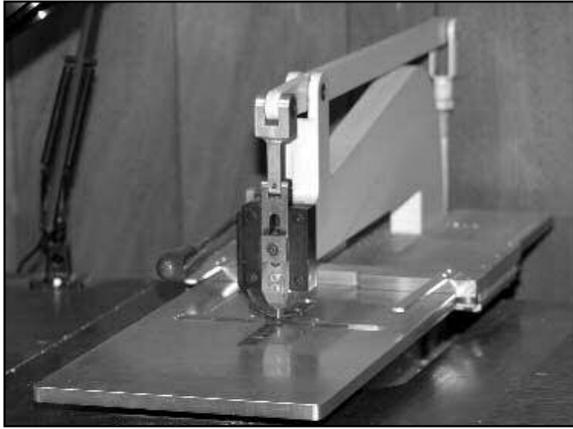


Figure 3. The complete punch mechanism as seen on the punch table.

The punch in this article is a foot-operated, single hole punch which can be described as follows: the basic punch mechanism sits within an aluminum framework which is mounted to poplar table (**Figure 3**). At the bottom of the table is a foot treadle that is attached to a fulcrum which activates an vertical rod at the rear of the table (**Figure 4**).

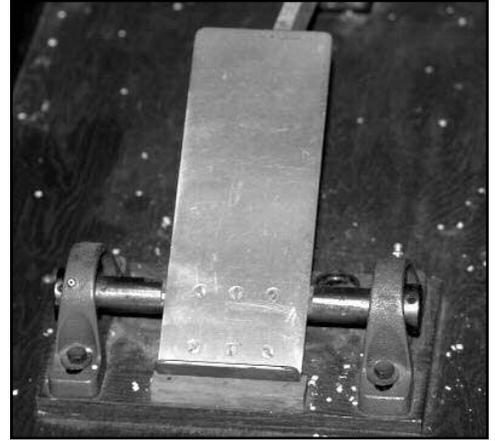


Figure 4. The foot treadle mounted on ball bearings.

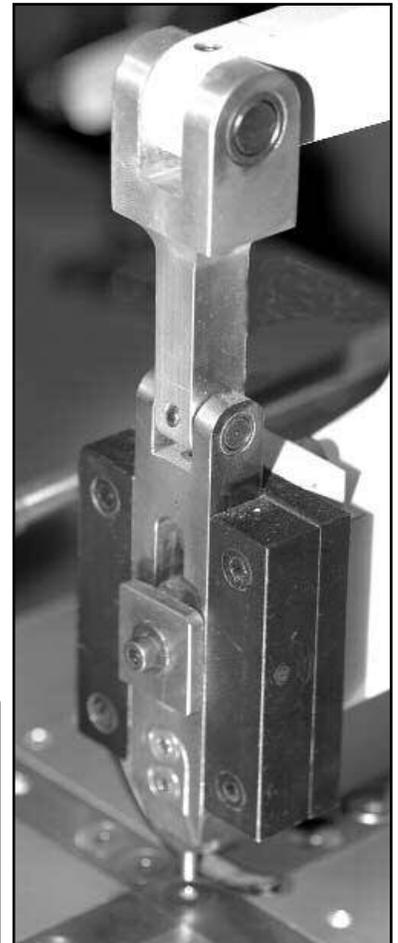
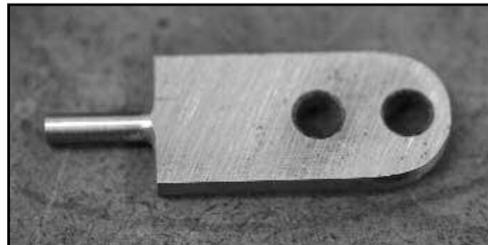


Figure 5. The arrow points to the weight placed on the vertical rod positioned in the rear of the punch. This acts as a counterbalance.

The rod has a weight on it (**Figure 5**) to keep the pedal in the "always up" position (as well as the punch itself). The rod then connects to a flat steel rod that activates the punch mechanism (**Figure 6**) by way of a fulcrum. The punch is hardened steel of the same diameter of the keyless music being punched (**Figure 7**) and meshes with a corresponding hardened die which is set in the punch table which is also aluminum (**Figure 8**, next page).

Figure 6 (right). The punch mechanism (as depicted in drawings in Figures 12 and 13) is a precise combination which produces predictable results.

Figure 7 (below). A punch for keyless music. The rounded, keyless perforation is produced by the hardened steel punch on the left. The two holes on the right assist in attaching to the mechanism seen in Figure 6.



### *A Description of the Book Punch Machine—Continued*

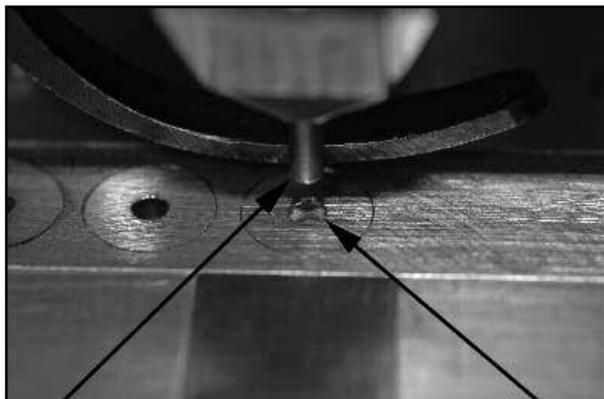


Figure 8. A close-up of the punch (left arrow) and die (right arrow) of the Haughwout punch.

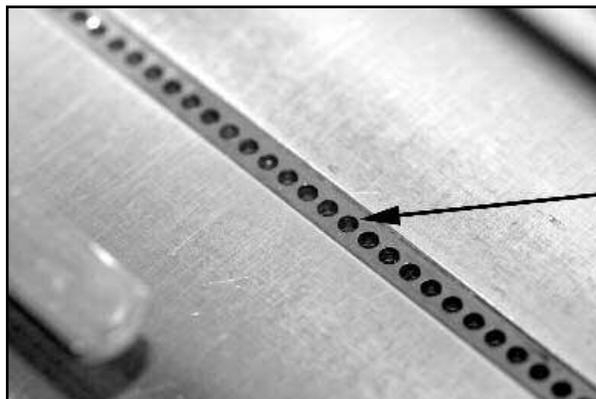


Figure 9. A close-up of the index bar revealing individual note spacing (arrow).

The correct spacing between the vertical height of the punched holes (on any individual book of music) is maintained by an index bar (**Figure 9**), which is a series of holes that are in the same spacing, again, as that particular keyless music.

Using the punch requires a pattern (either marked on the blank cardboard book [the making of blank cardboard will be covered by a separate article in this issue of the *Carousel Organ*—Ed] by pencil/pen or by stencil or by attached separate stencil which was produced by copying existing music, or generated by computer as new music). The pattern holes are then aligned under the punch (and over the die) so as to allow the hole to be punched correctly in both horizontal and vertical directions on the new, blank book (**Figure 10**).



Figure 10. The Haughwout punch in action, the punch positioned over a previously marked book.

Photos (this section):  
Ron Bopp

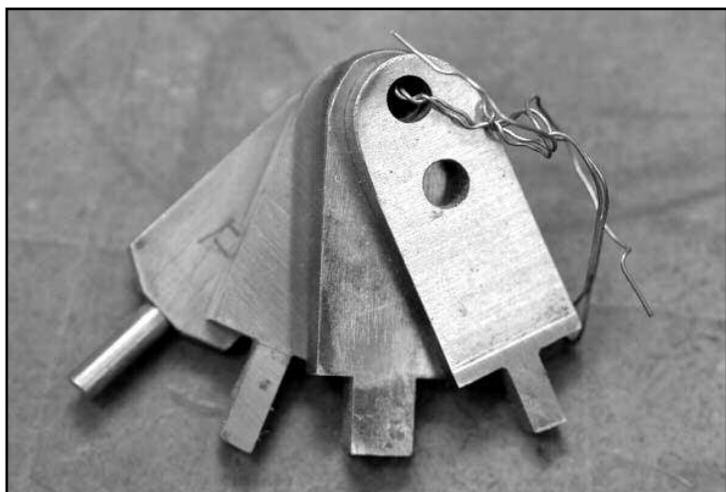


Figure 11. An assortment of punches for the Haughwout punch machine. A keyless punch is on the left while the remainder are for keyed punch machines.  
Photo: Ron Bopp.

*Continued from page 4 . . .*

by the Haughwout Music Company from 1987 to 1990.

Some of the punches were purchased to use for cutting music other than keyless fairground music. One such indication was for Wurlitzer roll music. A few were tooled up for keyed music as well. Only a slight modification is needed to do that. The toughest portion to complete was the index bar. Each organ would have different hole spacing, and therefore, a need for different index bars. Information for that came from Ken Smith as well as Reblitz & Bower's book, *Treasures of Mechanical Music* (1981).

The punches (**Figure 11**) have to be hardened and then ground. Dwayne "Snick" MacDonald was

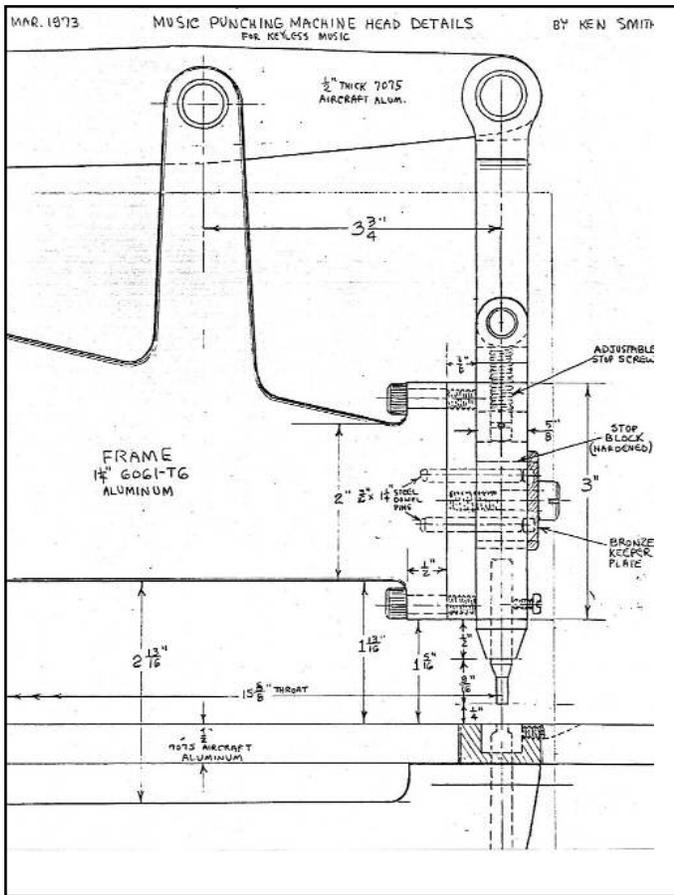


Figure 12. “Music punching machine head details” as detailed in a precise drawing by Ken Smith. Courtesy: Ken Smith Archives

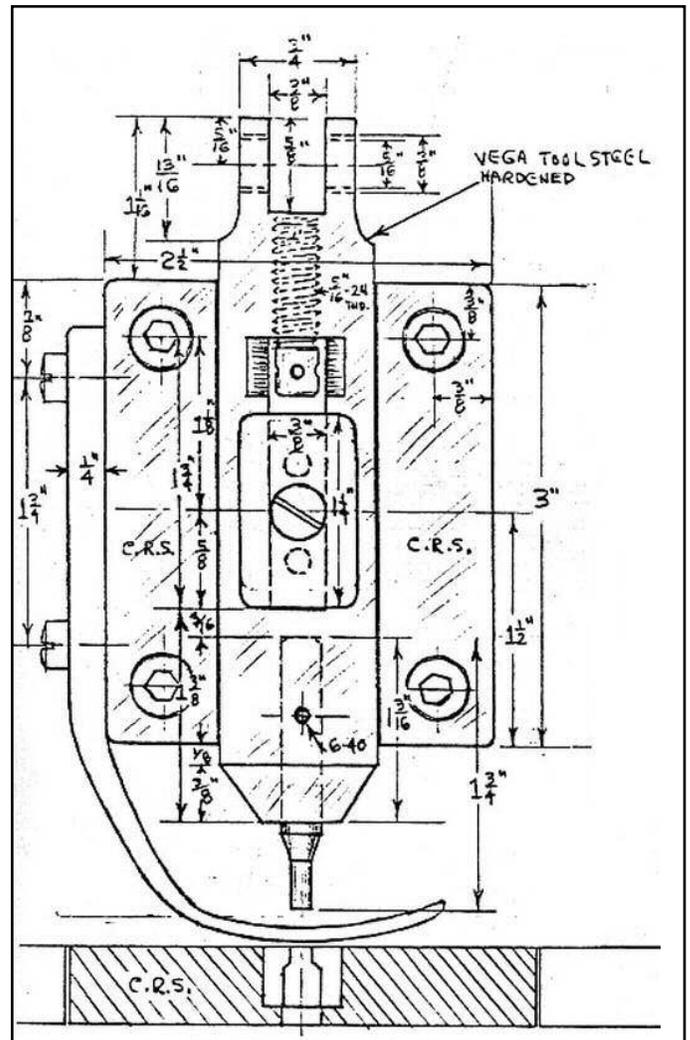


Figure 13. A frontal view of the punching machine head as drawn by Ken Smith. Courtesy: Ken Smith Archives.

the machinist that produced them. I made the index bars. Once I began manufacturing the punches, Vaughn “Jake” Feasel made the accompanying tables.

There were few changes made over the years—these are very precise machines. They originally sold for \$1,650 and that price remained the same over the years. Not all of the punch machines were used with regularity however, and I think that only 25% are used by collectors today. Many have remained mementos for collectors to demonstrate the art of producing new music for their collection’s prized organs.

There were other punches being made overseas at the same time and at least three Dutch punches were purchased by U.S. collectors (see the following two pages for examples of both vintage and current foreign punching machines).

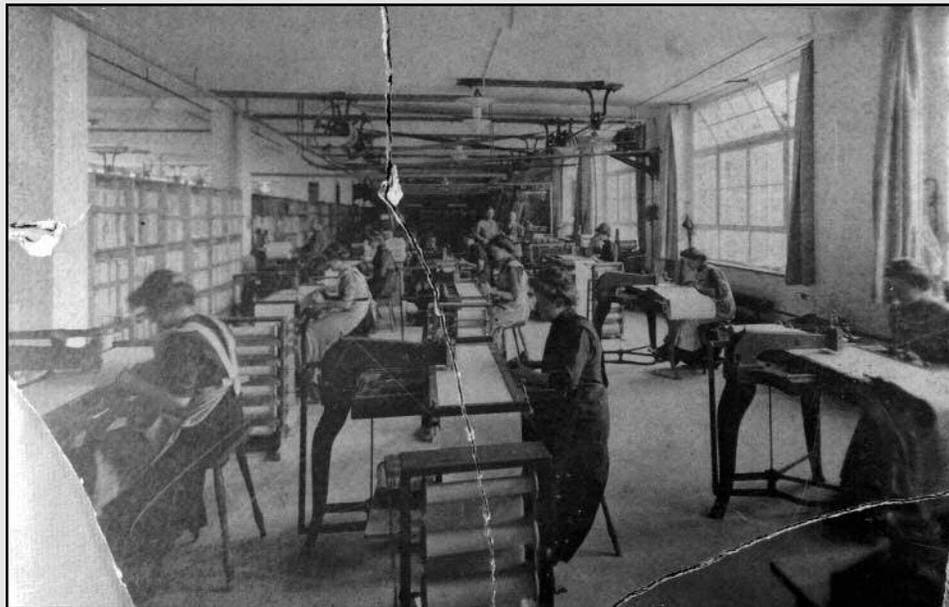
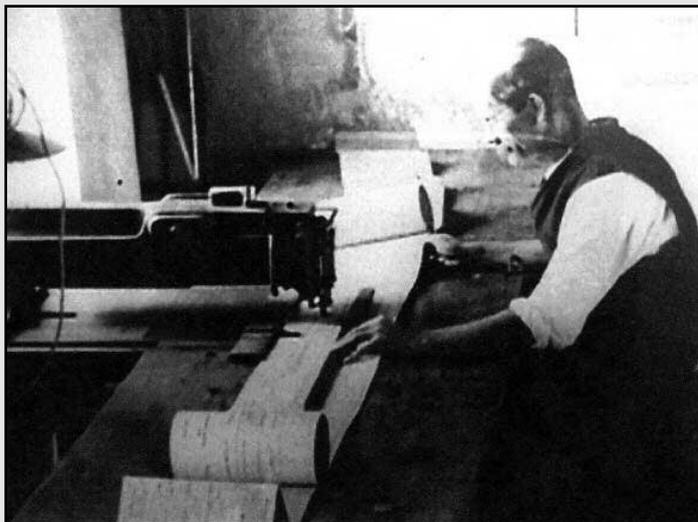


Figure 14. Ken Smith punching a book on the editor’s punch at a COAA rally in 2003. Photo: Ron Bopp

Photograph credits as noted for each illustration. A big “thank you” to Marian Smith who granted permission to use drawings generated by her late husband, Ken.

Terry Haughwout has attended most rallies since owning his Wilhelm Bruder organ. He is currently President of the Carousel Organ Association of America, and in addition to mechanical music, enjoys traveling with his wife, Joan.

## Historical Punching Machine Photographs



(upper left): One of a set of eight photos inside the Limonaire factory. This photo details four women punching book music.

Photo: Fred Dahlinger.

(upper right): An image from the Ruth factory. Previously printed (courtesy of Romy Maier of Switzerland) in a January, 1993 issue of *Het Pierement*, this photo apparently depicted a Mr. Theodore Fromm punching in the A. Ruth & Son firm.

Photo: Ron Bopp.

(left): Nine women punching, using a Prinsen-style punch machine. The location and company is unknown. The original photo came from Fred Fried.

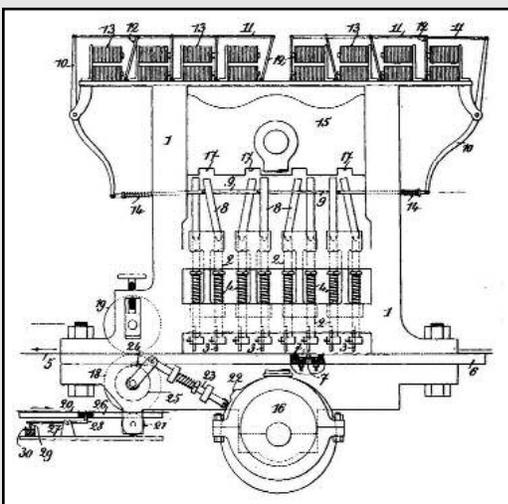
Photo: Fred Dahlinger.



The late Carl Frei, Jr. punching music in his shop. The punch is unidentified.

Photo: Dan Slack archives.

(right): A French patent dated January 4, 1908 “voor een automatische kapmachine van Limonaire.” Electromagnets positioned at the top operated small punches (labeled “3”) that eventually punched book music. The punch received directions from a master book.



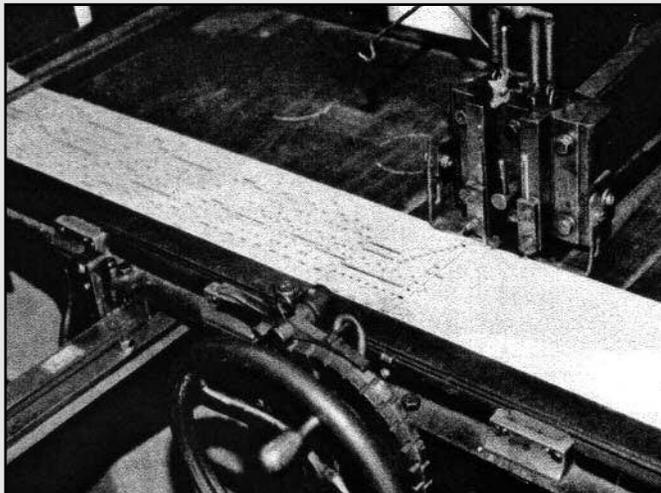
In his review of this article, Hans van Oost noted that “although the design of modern punching machines has changed the principle is still the same.”

Photo: *Het Pierement* (April, 1999)

### Contemporary Punching Machine Photographs



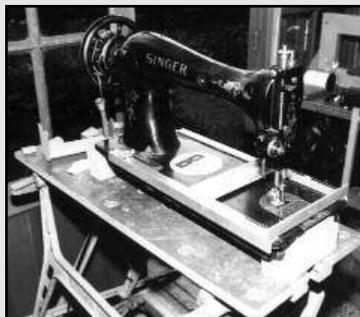
Arthur Prinsen at the controls of the multiple head Berthold punch.  
Photo: Neil Smith.



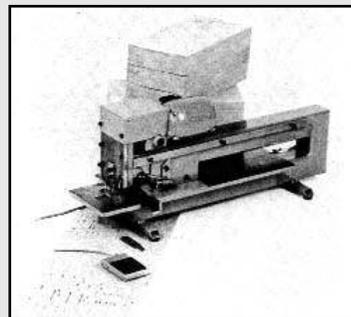
A close-up of a Berthold punch showing the handled-wheel in front to align the punch heads.  
Photo : GFSM (Martin Vander Vlugt.



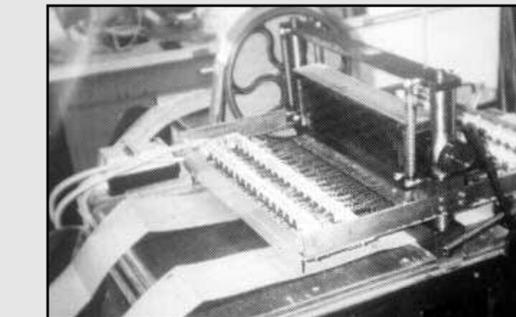
Jul. Berthold's business card advertising perforated music.  
Photo: GFSM



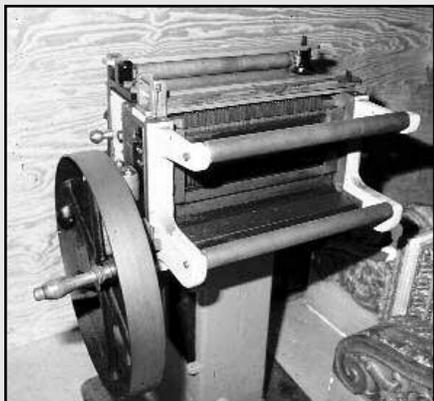
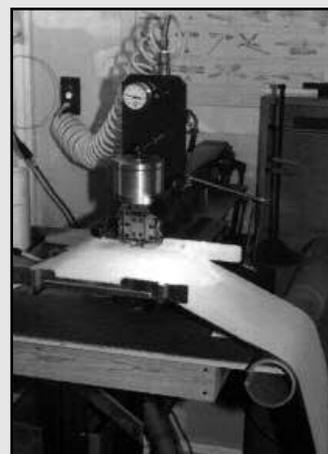
(left): Ted Bowman's "Singer" punching machine;



(right): a new punch made by Hans Bekkers, Holland.  
Photos: Fred Dahlinger.



(left): Marijke Verbeek at an unknown punch.  
(above): Verbeek automatic punch machine  
Both Photos: Dale Gunnar.  
(right): Mike Kitner's Pneumatic-operated punch.  
Photo: Fred Dahlinger.



(left, above & right): The Mangels (Bruder) cardboard book duplicator. Was this made by Bruder for Mangels? It is hard to imagine the carousel company having enough use to warrant the manufacture of such a sophisticated machine. It is supposed to copy up to 80-keyless Bruder music.

Photos: Robert Ridgeway (Sanfilippo collection).

