

**Figure 96.** Seven tongs for press-molding beads and buttons (Hannich 1931:59, 73).

wound bead came into fashion recently, and today it plays an important role, even in France.... A device was patented by M. Bonnet for making wound beads by machine using the principle of glass spinning (Parkert 1925:137, 138).

Leng (1835:504) explains the technique of winding, using a glass button as an example:

The worker sits at the crucible and dips the eye of the wire into the liquid glass, turns it around inside, making the lump of glass hanging from it round and then throws the button into a pot standing nearby where it gradually cools.

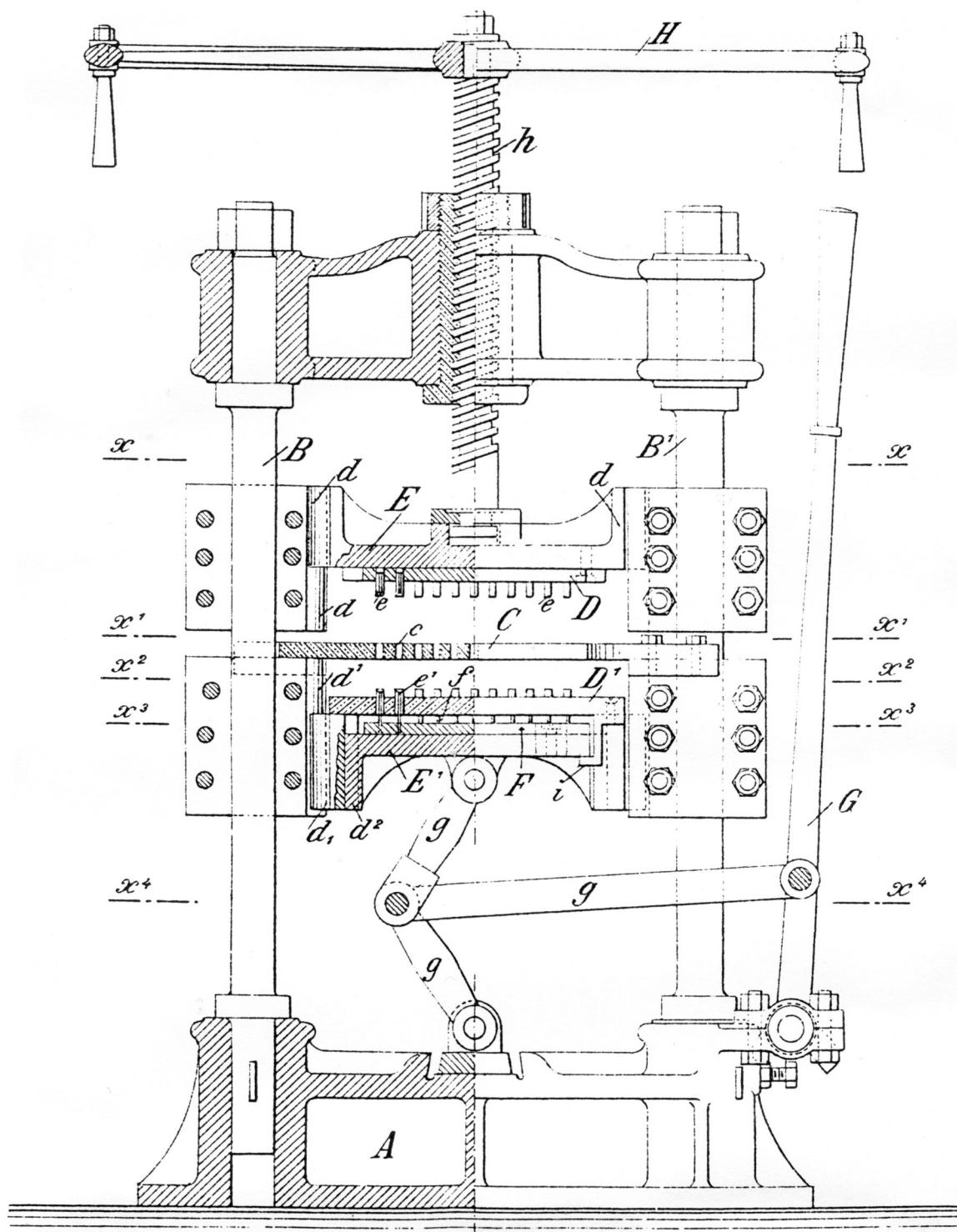
Wound beads, according to Graeger (1868:120), were made on an iron rod with a conical point. First the worker dipped the rod into soft clay, then into a pot with liquid glass. Holding the rod upright, he turned it on its axis until the glass had taken on a round shape. After cooling, the beads were sifted, shaken, rinsed, washed, dried, and polished in sacks with bran. Benrath (1875:351) provides a similar description of making the “wound” bead, although he points to Theophilus (n.d., 2:31).

## BLOWN BEADS

Included in the “*lavori alla lucerna*” (lampwork), along with the technique of winding which was practiced in Venice and Murano, there was also the blowing of the hollow glass bead at the flame of a lamp, as mentioned in Kunckel’s (1756) *Ars Vitraria*. Was Andrea Vidaore (also found as Viadora, Viaodore, Vidaora) from the 16th century really the first person to know how to blow round beads from hollow glass tubes? According to Bussolin (1847:53, 54), he founded the art of the *perlaire* (earlier *suppialume*). His technique spread rapidly, especially in France where Jacquin, the Parisian *petenôtrier* (“paternoster maker”), first put hollow glass beads with silver essence made from fish scales on the market. The pearl essence (*Essence d’Orient*) gave the glass bead the silky shimmer of real pearls (Loth 1859:72). Diderot’s *Encyclopaedia* already shows illustrations of the making of false pearls (*perles fausses*): the scales of the whitefish, sucking in the solution and blowing it into a bead, filling it with wax, inserting a little roll of paper into the bead so that it could be threaded later (Diderot and d’Alembert 1772: Plates I-III). Later on, machines performed this task (Figures 109-111).

The production of hollow glass beads spread quickly in Bohemia, Austria, and Germany (Parkert 1925:152). Blown beads were mostly made in Venice, Bohemia, Pest, and Vienna. The Venetian beads were offered “in 15 different numbers, in all shapes and colors;” Bohemian glass spinners and glassblowers were found in Turnau, Liebenau, and other places; Grainer in Pest produced “various blown glasswares” (Keess 1823:904). A large number of blown beads made by Anton Schwefel are preserved in the Technical Museum in Vienna (Plate 21B). “Wax beads” are nothing other than hollow beads whose pearly shimmer is achieved by inserting “pearl material” (pearl essence) into the bead. The extremely thin, hollow glass bead was fortified with a wax filling which acquired a reddish or yellowish sheen from cinnabar or a yellow pigment (e.g., curcuma) (Keess 1823:902). “Ordinary, medium, and fine varieties” were sold in strands, with a strand of the smallest beads holding 100 to 150 pieces, the medium sized beads 50, the large 30

Fig. 1.



**Figure 97a.** Method and apparatus for pressing beads of pliable substances (Part 1), 1887, Walldorf & Co., Gablonz, privilege no. 37/1292 (Austrian Patent Office).

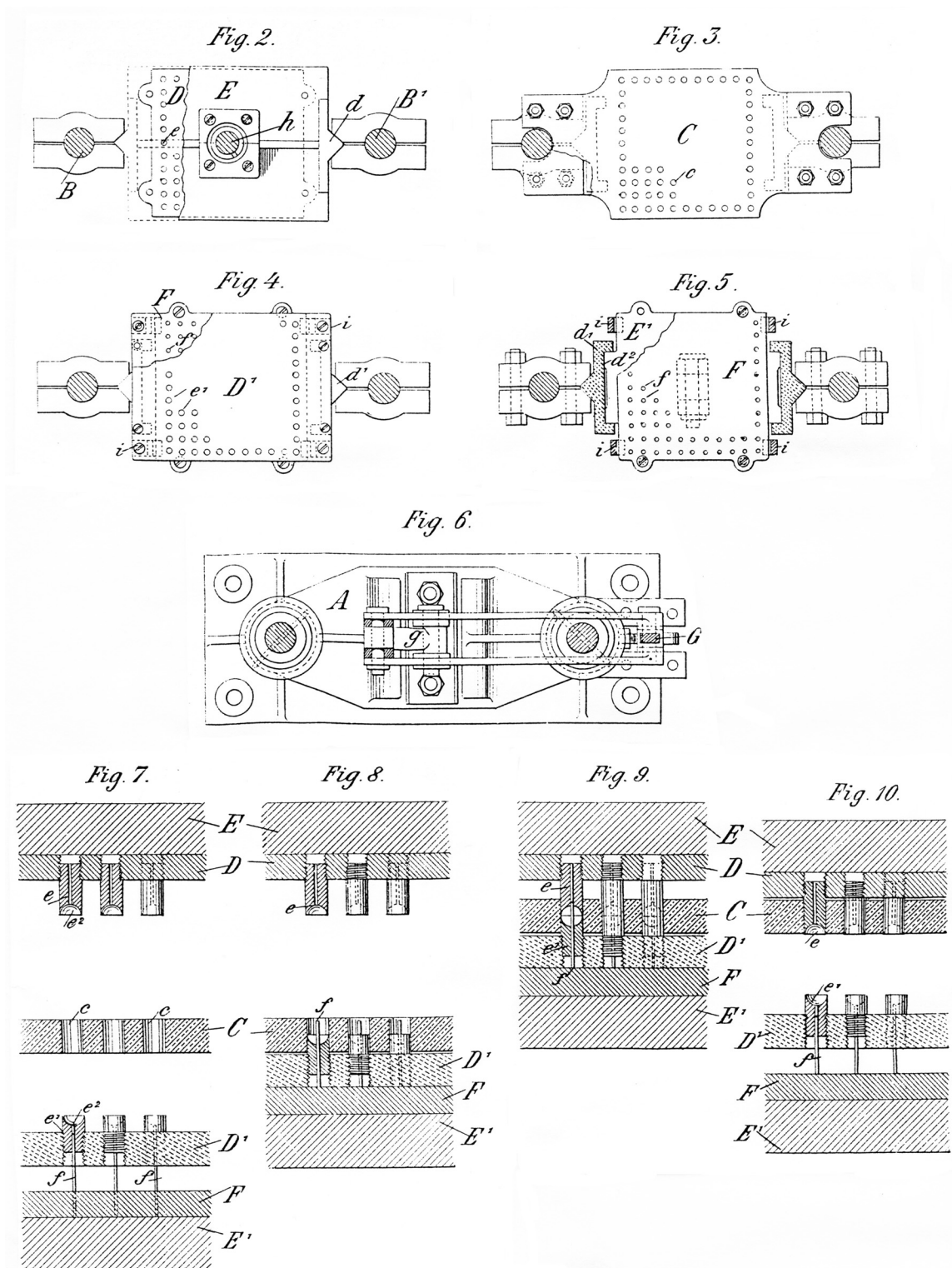
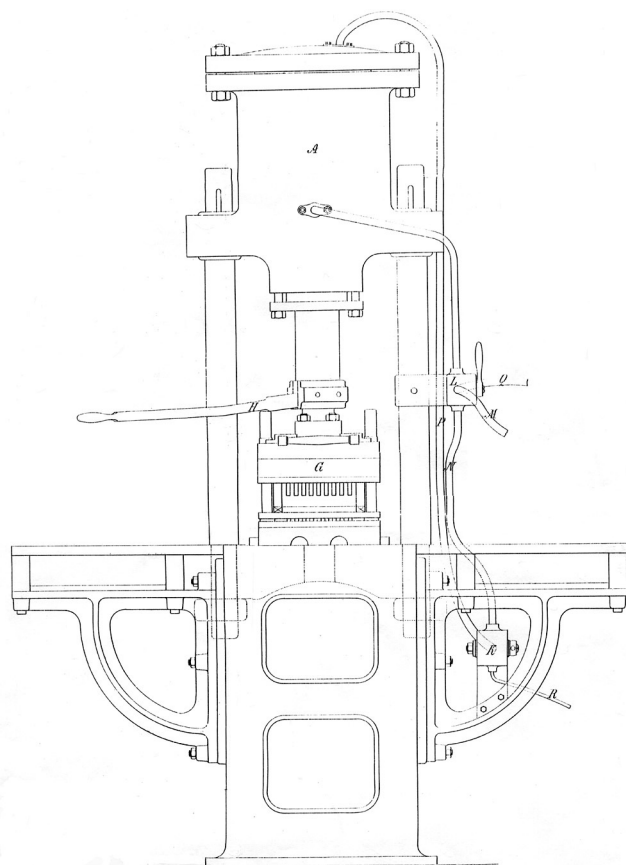


Figure 97b. Method and apparatus for pressing beads of pliable substances (Part 2).

to 50. The production of artificial pearls was supposed to have been introduced to Vienna by immigrant Frenchmen

in 1787. The Viennese "artificial pearl manufacturers," Joh. Keimel, Anton Schwefel, and Ant. Birgmayer, among



**Figure 98.** A hydraulic pressing system for manufacturing buttons, beads, and other similar objects made from ceramic materials, 1880, J.F. Bapterosses, privilege no. 30/953 (Austrian Patent Office, Vienna).

others, were known for their “very excellent” wares. In 1822, a dozen strands of ordinary Viennese glass wax pearls (in two sorts) cost 1½ to 2 fl., the medium-fine wares 5 to 7 fl., and the fine wares 20 to 24 fl. (Keess 1823:905).

There is no doubt that the Gablonz hollow-glass bead experienced a high point in the Biedermeier period. The most beautiful beads and bead necklaces of that period are now found in the collection of the Technical Museum in Vienna (Plates 21D-24B). The wealth of shapes, colors, and decoration was inexhaustible.

Most beads are made round, but there are also pressed shapes, oval, cylindrical, almond shaped, angular, those wound like scrolls, etc. The so-called *craw* or baroque pearls (*Kropf-perlen*) are given little outgrowths to make them look more like the natural ones;... (Leng 1835:501).

Finally there are also figured beads, for example, those with a belt of raised knobs, with melon-shaped grooves, leaves and other simple decorations

which achieve their fully developed shape in two-part molds.... The molds are used thus: the little spheres, blown to almost their desired size, are put into the molds while still hot; air is blown into the tube on which the sphere is still fastened and the tongs closed at the same time. The design is shaped by the pressure of the air being blown in and the pressure of the soft glass against the depressions on the sides of the mold... (Altmütter 1841:90).

Beads with irregular shapes were usually known by the illustrative term *craw* (*Kropf*) bead or baroque pearl. Imitating the genuine baroque or “lumpy” pearls was achieved by touching the glass bead with the flame and blowing air into it at the same time; this caused the walls to swell out at these particular places and little raised places became visible “which imitate those lumpy parts” (Loysel 1818:307). *Craw* beads or pearls also resulted when the glassblower at the lamp touched the bead with the end of a red-hot glass tube and pulled outwards (Keess 1823:901; also Leng 1835:501).

The art of blowing beads was brought to Gablonz by “people from Turnau who worked in Venice or by Venetian workers who settled in Turnau” and Endler in Gablonz was supposed to have learned the technique from them. The oldest-known Gablonz beadblowers were Joachim Hemrich, Anton Scheibler, Franz Wawersich, Josef Scheibler, Anton and Anastas Seidel, and Anton Appelt, among others.

In the beginning only round beads were produced. They were made of ruby-colored composition that was “painted” inside with cinnabar to give them the color of corals. Later “pears,” acorns, olives, laurel berries, etc., were also made of hollow composition canes at the flame of the lamp; they were no longer restricted to the coral color, but these variously named wares were made in all colors. They were decorated by etching, silvering, lustering, and gilding. Beadblowing spread from Gablonz into the mountains, to Morchenstern, Josefsthäl, Maxdorf, etc. (Benda 1877:165, 166).

According to Lilie (1895:165, 166), “the relatives of the glassmakers who Elias Zenkner brought here from his home country... were the first to make these beads.”

The artistically wrought “lamp” of Diderot (Diderot and d’Alembert 1772: Plates I-III) or the one belonging to Anton Schwefel stand apart from those which were often simply made of primitive tin cans (Figure 16) but still managed to serve their purpose. Fed with oil or tallow in the beginning, later with “imperial oil” (refined petroleum), these “lamps” were still being used in the Bohemian region at a time when better equipment, such as gas burners and



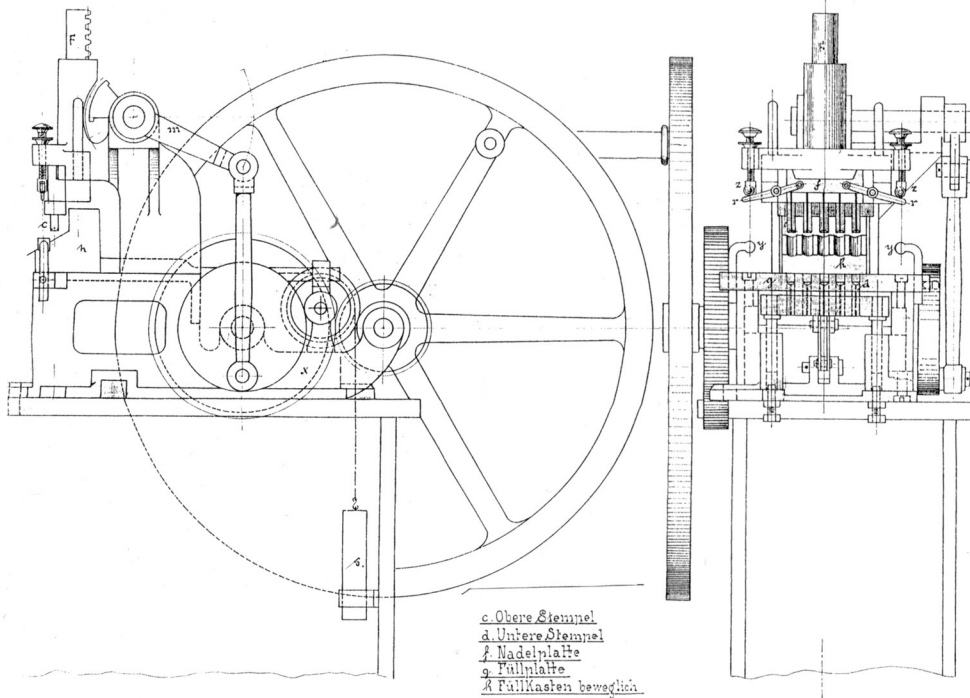


38/1616

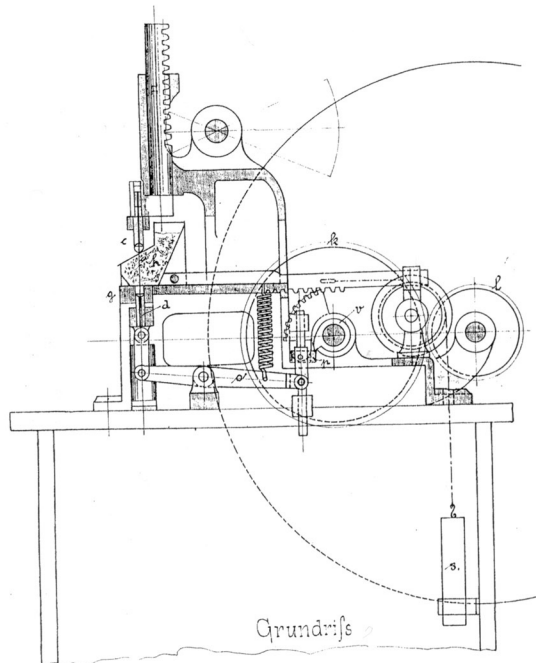
# Continuirlich wirkende Knopf & Perlen preſſe

Seitenanſicht

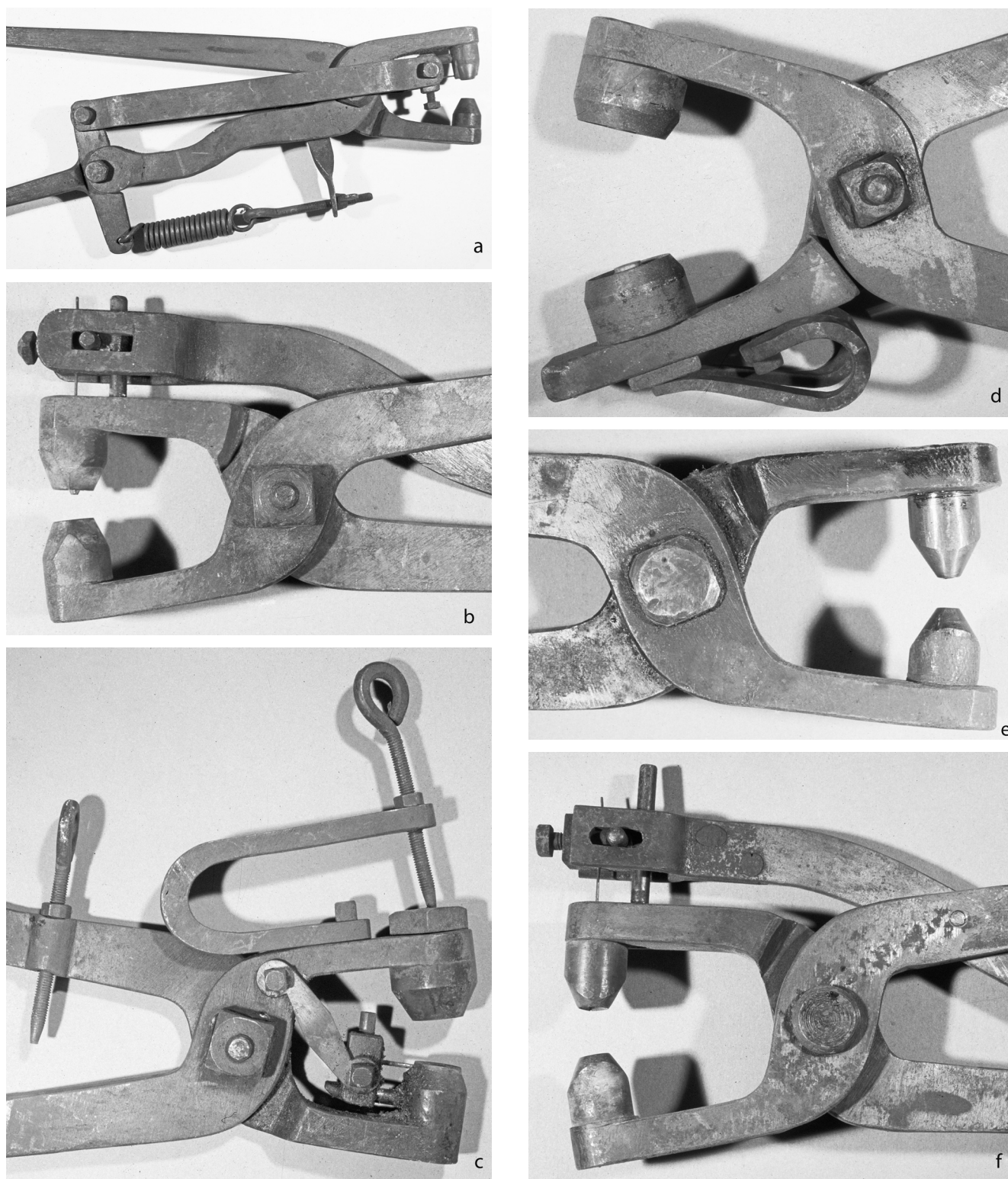
Vordere Anſicht



Schnitt ab



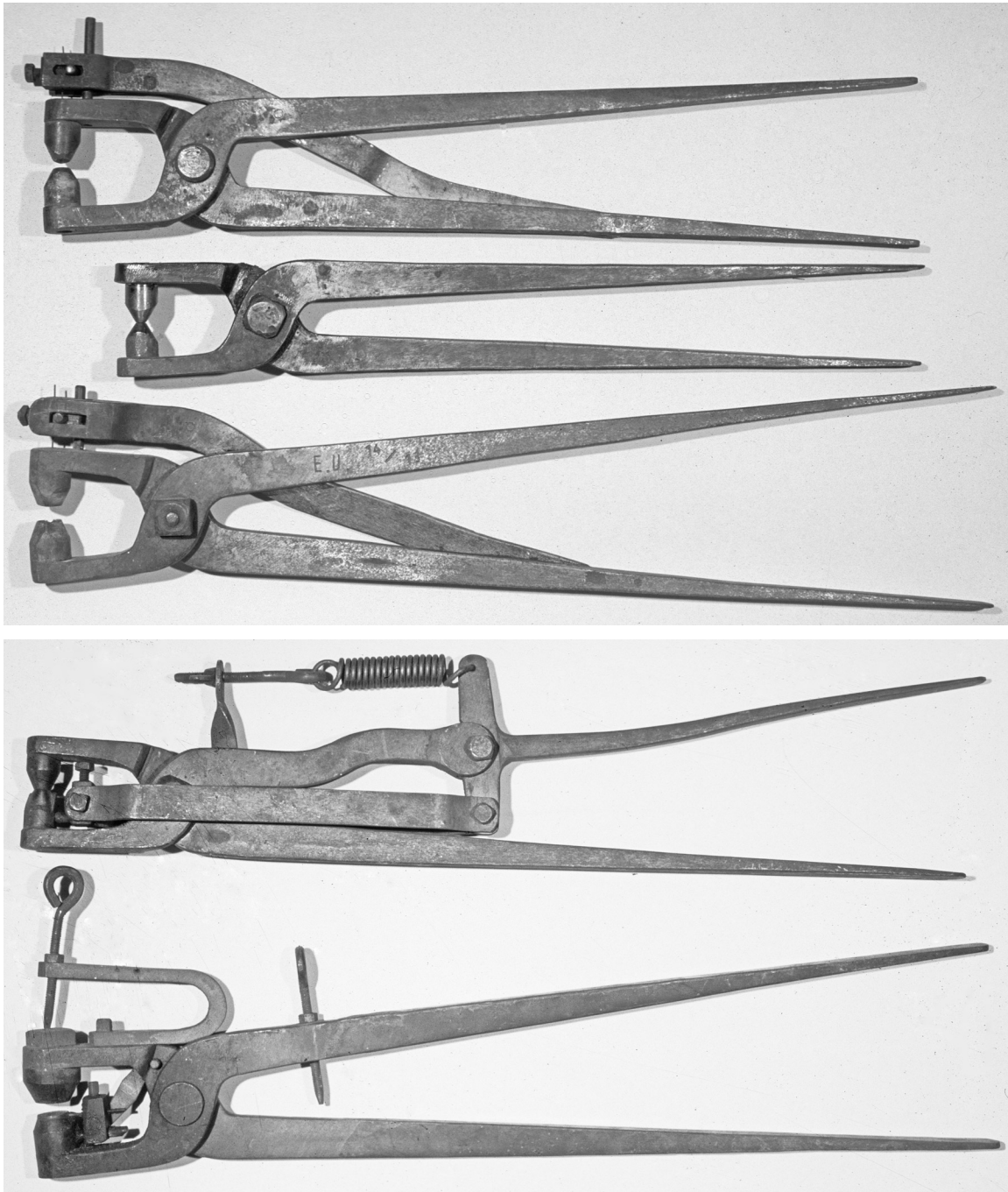
**Figure 99.** Button and bead press, 1888, Albrecht Max, Reichenberg, privilege no. 38/1616 (Austrian Patent Office, Vienna).



**Figure 100.** Details of glass-molding tongs for lamp and furnace pressing (Adolf Glaser, mold-smith, Schwäbisch-Gmünd).

compressors, had long been available. Towards the end of the 19th century, the “blowing table” (with a bellows)

was in general use (Lilie 1895:165, 166) (Figures 14, 112). The beads were made separately, blown free-hand or in



**Figure 101.** Glass-pressing tongs for lamp and furnace work (Adolf Glaser, mold-smith, Schwäbisch-Gmünd).

individual molds (Figure 113-114), or were blown in rows of connected beads (*Klautschen*) (Figure 115). They were also made with the bead-shaping machine (Figures 116-117) which was introduced into the Iser Mountains in the 1870s (with a pressure tank attached to the pressing mold). Further improvements were brought by the Jossand method (*Jossand'sche Verfahren*) (Parkert 1925:156) (Figure 118).

Color-lining, silvering, and gilding have already been treated in the chapter on colors and coloring since they were not used exclusively for hollow glass beads (Plate 21A). The so-called gold bead is also mentioned there. Shiny gold-glass beads are defined differently by contemporary authors: generally speaking, the gold bead was a bead made of yellow glass (topaz, amber, or honey colored) lined with

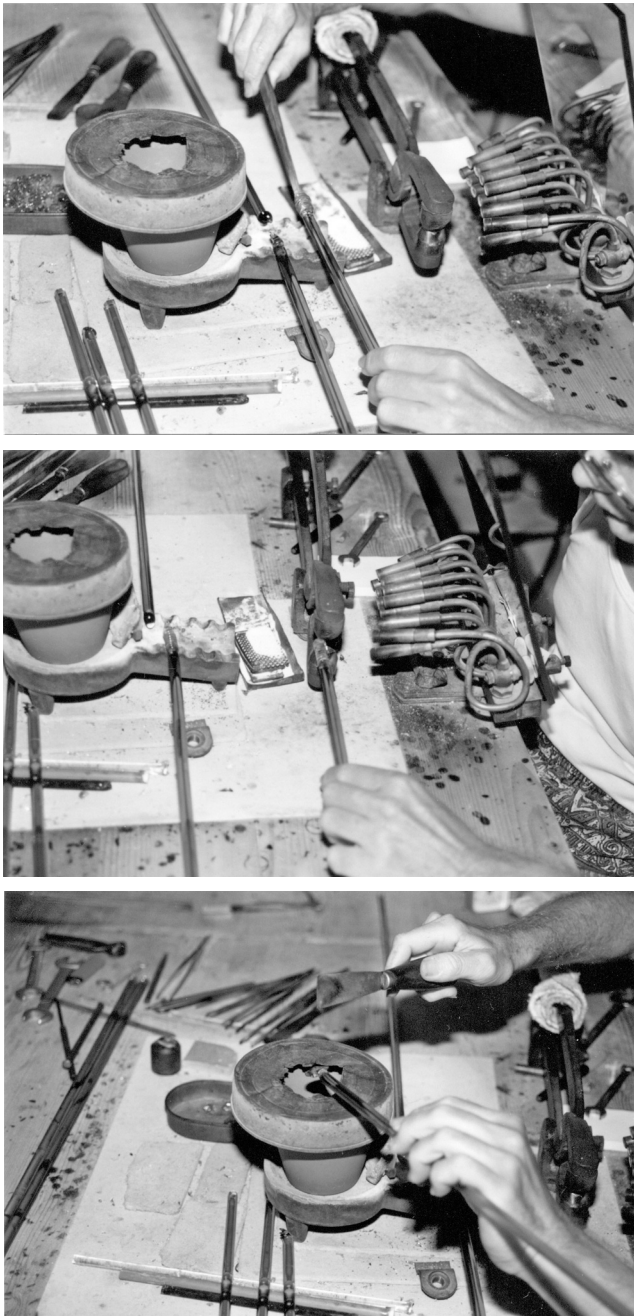


**Figure 102.** Molds for making “caps” for glass-pressing tongs (Adolf Glaser, mold-smith, Schwäbisch-Gmünd).



**Figure 103.** Molds for making “caps” for glass-pressing tongs (Adolf Glaser, mold-smith, Schwäbisch-Gmünd).





**Figure 104.** Winding and pressing stones and beads, 1994 (Alfred Mantel Co., Mauerstetten-Steinholz, Germany).

silver (Plate 21C); the real gold bead: crystal glass with a real gold lining. Real gilt hollow beads were only made in Paris up to the beginning of the 1890s (Gablonz 1898:162). On the one hand, the fine gold bead is seen as a bead “made of a specific yellowish glass composition (lead glass)” (Tayenthal 1900:24); on the other hand, as a synonym for the real gold bead by Winter. The sample cards from Weiskopf in Morchenstern are supposed to have shown no less than



**Figure 105.** “Lamp winder” at work (Neugablonz Industry and Jewelry Museum, Kaufbeuren-Neugablonz).

1,500 different kinds of such beads (Winter 1900:89). The Gablonz counterpart to the “Parisian real-gold bead” was made by only a few companies; the output of blown beads amounted to a value of about 100,000 gulden a year. The markets were “English and Dutch India, the Orient, Egypt, Central and South America” (Gablonz 1898:162).

With the invention of molds which made it possible to make ten or more beads at a time (Figures 119-122; Plate 21A bottom), production increased considerably; at the same time, prices dropped (Gablonz 1898:162). These molds are supposed to have been invented by a beadblower in 1876 (Tayenthal 1900:24). In an effort to counteract this trend, the Production Cooperative of Blown-Glass-Bead Producers (*Produktivgenossenschaft der Hohlperlen-Erzeuger*) was founded in Gablonz in 1898, but was already disbanded by around 1909-1910. At the German-Bohemian Exhibition in Reichenberg in 1906, it showed “internally painted, internally ribbed, internally silvered and gilded beads in the most diverse shapes. The exhibition material was partly arranged in the form of attractive ornaments and formed a marvelous imperial crown or, on five wall panels, flowers and birds” (Schindler 1906:1720). These were molded and free-formed beads: “...the latter show only spherical, olive or pear shapes; the former, however, represented a rather wide range of shapes. The ordinary beads are 3 and 15 mm in size, the smaller ones were all made in the mold” (Arnold 1909:90).

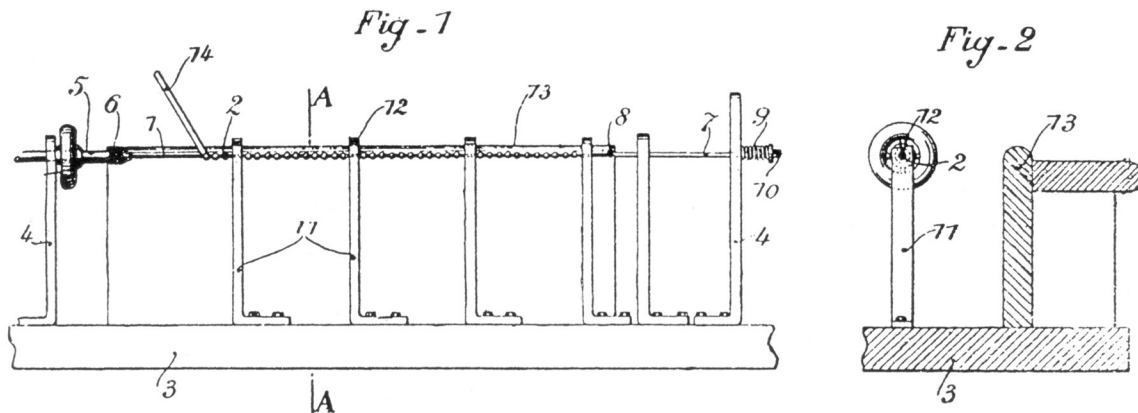
Schander states that the center of hollow-glass-bead production was the Kamnitz Valley with the towns of Antoniwald, Josefstal, Lower and Upper Maxdorf,



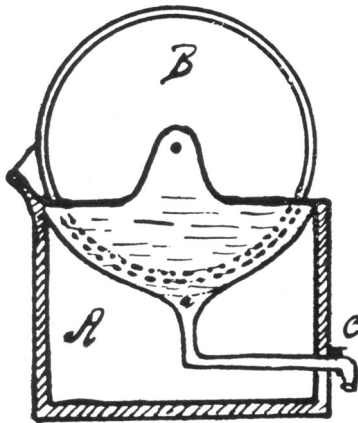
**Figure 106.** Work station for winding beads (using gas), Neugablonz, about 1950 (Neugablonz Industry and Jewelry Museum, Keufbeuren-Neugablonz).

Albrechtsdorf, Georgenthal, Wiesenthal, and Morchenstern. In addition to the technical innovations which became standard equipment in the Kamnitz Valley (bead machines, brass molds, Bunsen burners), secluded “enclaves” continued to make the blown bead free-hand, without molds, over a pointed flame (Schander [1954]:4b, 4c). The invention of “internally ribbed” beads (first known in the late 19th century) engendered enormous admiration:

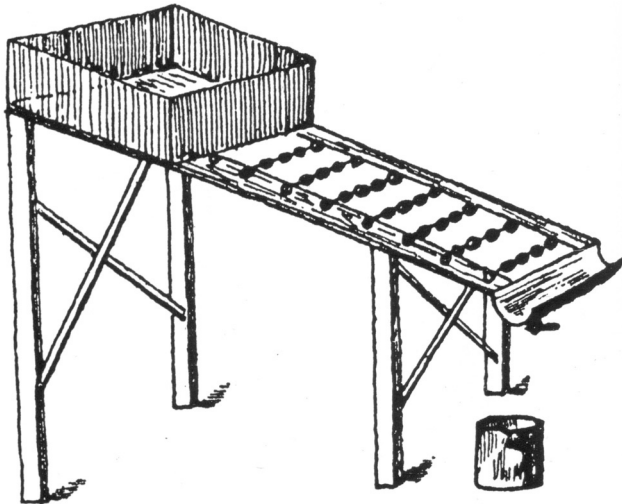
There was considerable surprise when the freehand, internally ribbed beads were seen in sizes of 10 to almost 16 mm. The shapes, twisted once or even twice, the so-called double-twisted, far surpassed all the other shapes in beauty. Small, delicate round spheres covered with fine engraved lines as if covered with a fine silk fabric did not exist before and will never again once the freehand women



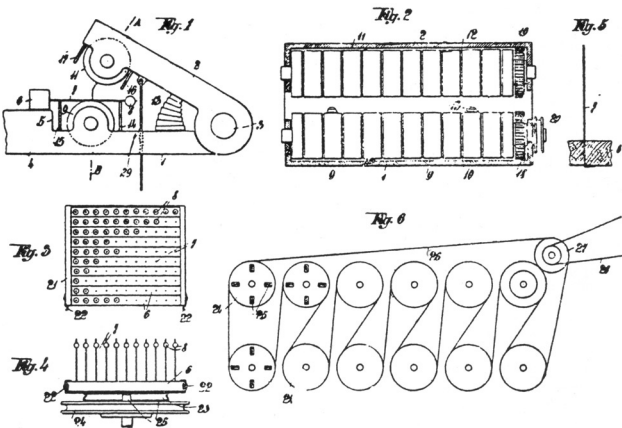
**Figure 107.** Mechanized production of wound beads, the process of M. Bonnet (Parkert 1925:138, Figure 29).



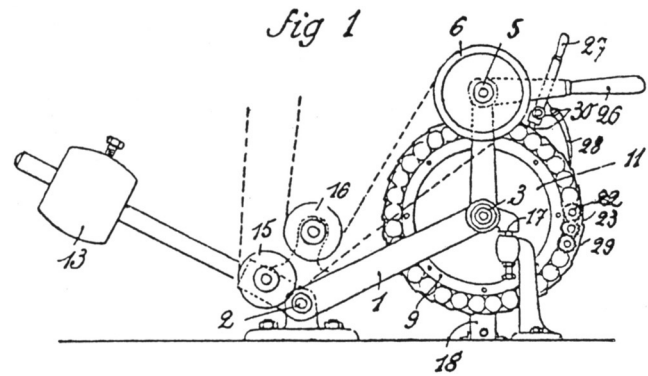
**Figure 108.** Sieve drum for coating beads with pearl essence (Parkert 1925:170, Figure 39).



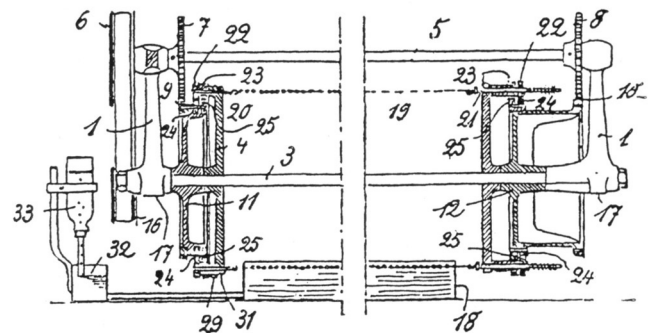
**Figure 109.** Device for coating beads with pearl essence (Parkert 1925:177, Figure 42).



**Figure 110.** Machine for silvering beads with silver essence, Plessner method (Parkert 1925:175, Figure 40).



*fig 2*



**Figure 111.** Apparatus for silvering beads with silver essence made from fish scales, Paiseau method (Parkert 1925:176, Figure 41).

workers who make them are gone from the blowing table... (Schander [1954]:4b, 4c).

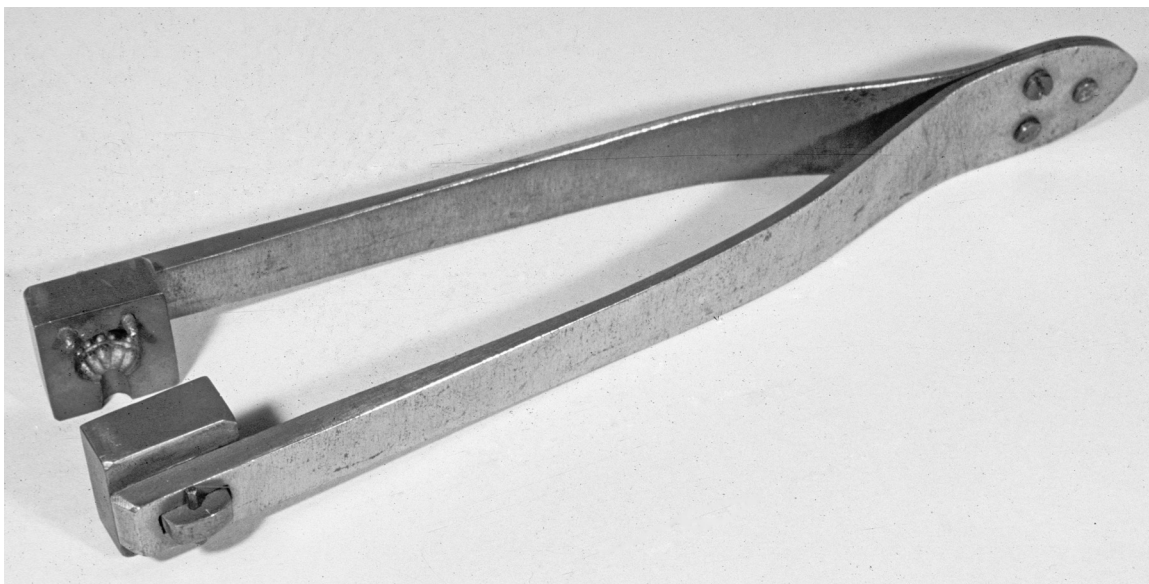
The internally ribbed beads were presented at the German-Bohemian Exhibition in Reichenberg:

Many kinds of beads made of internally ribbed glass achieve the appearance of being ribbed on the outside through the method of their production. Frequently they are twisted while they are still glowing hot in such a way that the ribs appear to be turned or run into each other in blunt angles in the middle of the bead surface (Arnold 1909:90).

After the glass tubes with uniform internal ribbing were developed, special effects were achieved with irregular internal ribbing: "irregularly patterned" glass beads were made with widely differing thicknesses of the walls. Dr. Weiskopf & Co., a chemical factory in Morchenstern, received a privilege (no. 49/1273) in 1899 for this process which concerned walls with irregular thicknesses and irregular ribbing. Internally ribbed hollow glass was made by the Riedel glasshouses starting in 1910 (Schander [1954]:5b).



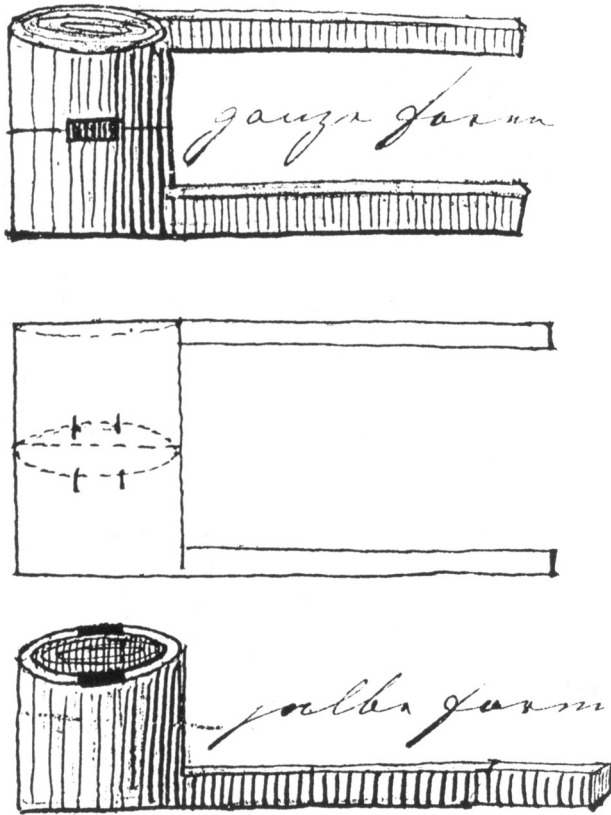
**Figure 112.** A hollow-beadworker's workshop (bead-molding machine with bellows) (Parkert 1925:158, Figure 37).



**Figure 113.** Shaping tongs for a glassblower; length 19.8 cm (TM 7624/22929).



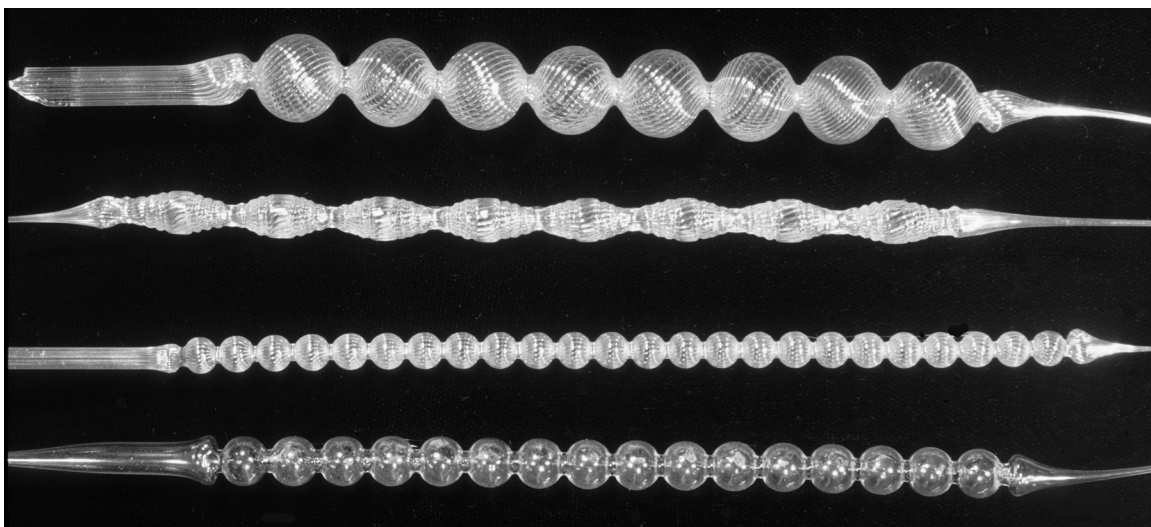
In a survey of metalized hollow beads (silvered or gilded), Schander mentions round smooth beads (*Glatte*),



**Figure 114.** Process for making hollow-glass beads with a wide hole, 1886, Anton Devide, Josefthal, privilege No. 36/1629 (Austrian Patent Office, Vienna).

round faceted beads (*Formperle*), acorn beads and olives, smooth cubes, cubes with little raised crosses, wreathed barrels (*Kranzelfassel*), triangles, round melon beads with ribs, melon toggles and corner toggles, end pendants (*Endbirnel*, round beads with a pear-shaped bead attached), eggs, lanterns, internally ribbed beads (blown in smooth molds exclusively), free-hand beads, and *Hafer* (elongated beads). Brass molds were employed for the smaller, less valuable beads that were used as filler beads or spacer beads. Large articles such as cabochons and pointed ovals were blown into nickel molds which guaranteed sharp edges and a high brilliance. At the time of the three “black ‘booms’” (between 1890 and 1914, and again around 1920), the black bead was in especially great demand, especially the smooth round beads, rhomboid and faceted molded beads, and pointed ovals” (Schander [1954]:8).

Wax-filled glass beads were later replaced by beads of solid white glass (usually alabaster glass). The coating of “fish silver” was secured with varnish. These so-called imitation pearls are still put on the market today under a variety of names (e.g., the “Maharani pearls” of the Swarovski Company in Wattens, Austria). The principle of this technique of making solid beads with coated surfaces was basically nothing new, even though a different material was used: alabaster. Already in 1823, Keess points to a comparable method of making imitation pearls, when he mentions the so-called “Roman pearls” being industrially manufactured in Rome. Here a core of alabaster twisted off in the shape of a pearl is painted with “fish-scale material.” Since the surfaces of these genuine “alabaster pearls” wore off quickly, the “filled glass beads” were preferred (Keess 1823:902). Solid-wax beads were made in the 19th and 20th



**Figure 115.** Row of attached free-blown hollow beads (“free-hand beads”); length (top): 18.8 cm (Gablonz Archive and Museum, Kaufbeuren-Neugablonz).

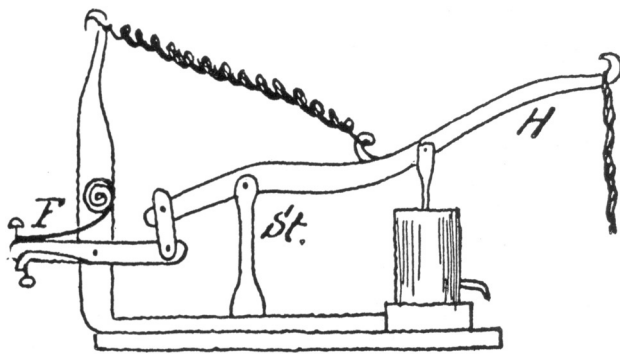
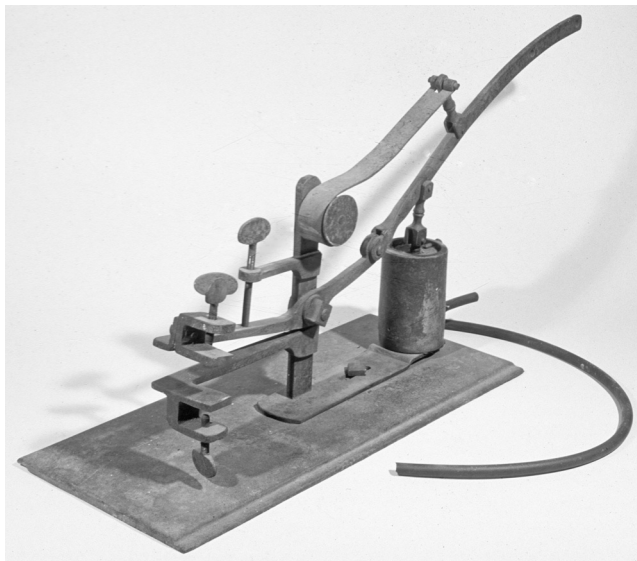


Abb. 35.

**Figure 116.** Bead-molding machine (using compressed air) with device for holding the bead molds (F)(Parkert 1925:155, Figure 35).



**Figure 117.** Bead-molding machine (using compressed air), Josefsthäl, around 1900; height: 20 cm (Gablonz Archive and Museum, Kaufbeuren-Neugablonz).

centuries and many companies still produce them. “Solid beads with fish-scale decoration applied on the outside” were shown at the German-Bohemian Exhibition in Reichenberg (Schindler 1906:1721).

There is evidence of a number of companies that specialized in making solid-wax beads around 1930 (Lodgman and Stein 1930):

Andreas Hampel/Gablonz; Belda & Co./Turnau (since 1920, the *Oriente* and *Eterna* wax beads); Finger & Co./Doubrawitz near Königshof (“Wax beads of every kind, buttons, chains and necklaces, one- and two-hole beads, candle drip collars, etc., in all qualities, hollow and solid, and in all colors”);

J. Posselt/Gablonz (“Thuringian wax beads / solid wax beads of all kinds”); Adolf Kopal/Gablonz (“Wax beads, Thuringian beads of all sorts, such as half beads, hollow spheres and buttons, hollow-iris, filled, iris-filled, through-hole knitting beads, spacers, necklaces in chains and pendant, also solid waxed; always something new and all kinds of colors...”); Hugo Tischer/Gablonz (“Production of all kinds of glass beads, especially real gold beads and fine silver beads in shiny, matte, and all colors; rocailles and bugles”); Gustav Weisskopf/Gablonz (“Special production of strung wax beads in all sizes”).

### SAMPLE CARDS OF THE REDLHAMMER AND MAHLA COMPANIES

In 1913, the Technical Museum for Art and Industry in Vienna received a “collection of samples of porcelain beads and buttons” as a gift from the Redlhammer Brothers Company in Gablonz (Plates 19C-D, 25A-43A). The sample cards from the Mahla Brothers probably came at the same time (Plates 43B-50). Both companies were strongly export oriented. While Redlhammer also made its “porcelain beads” itself, Mahla was concerned with the export business that was essential to the existence of the entire Gablonz industry.

... the exporter – that’s what the current terminology calls the glass dealer – takes the new samples given him by the people hoping to work for him (“Gurtler,” glass molders, glass spinners, etc.) or he has such samples taken up through his own people, specifically the so-called sample makers, and sees to it that they reach customers, chiefly foreign trading companies, either directly or through traveling salesmen, as a help in making a choice and ordering. Also sometimes such customers even send in a sample of foreign origin, whereupon the exporter has the desired amount made.

As a rule, the sample, for which orders are placed, requires the work of several groups of workers.... Between him and the different producers is the supplier. With him, the exporter settles on the price of the wares to be delivered, based on specific samples and the time of the handover (delivery) of such wares; the remaining “how” and “what” in regards to production do not concern him. The supplier either limits himself to actual delivery without personally having a part in the production, or he owns a workshop, a cutting or molding works,