FOUNDRY PRACTICES AT THE J. & E. STEVENS CO. DURING THE 1880's

Mark Haber 1962

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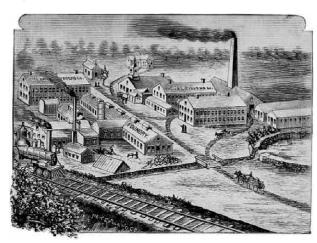


The fires are stilled at the old Stevens Foundry and the Whiting #2 cupola furnace has ceased to gush forth its stream of white hot molten iron. The remnants and fragments of a once flourishing industry are still in evidence, and the buildings which housed the various processes of manufacture, mutely reflect a scene of activity of a bygone era. The buildings have been sold to small manufacturing firms and the foundry building, where all the wonderful banks and toys emanated, is now used as a warehouse for storage purposes.

But let us turn back the pages of history, almost a hundred years, and try to recapture some of the scenes, the tempo, the activities, the processes, the lives of the people who lived and worked at the foundry. Here, in Cromwell, Conn. at Frog Hollow, the site of the old foundry, many skilled workers spent the major portion of their lives in the manufacture of hardware items, banks, toys, and cap pistols.

Here, in 1843, John and Elisha Stevens planned the location of the foundry; being ideally situated near a small lake and water power for the operation of a water wheel. The Connecticut Valley Railroad spur at the rear of the plant furnished the transportation of the raw materials necessary for operation, such as pig iron, scrap iron, coal, coke, sand and other sundry materials.

For a period of about 30 years, hardware items, small penny toys, cap pistols, cap bombs, still banks, animated banks, toy steam engines, and a variety of wheel toys, were turned out in profusion and sold to dealers and jobbers throughout the country, and exported to some foreign countries.



The period of greatest activity at the Stevens Foundry covered a period of about 30 years, with the introduction of several of the John Hall banks, with variations of his basic patents around 1869, followed by J. H. Bowens numerous inventions, and ended with Charles Bailey's prolific creations in 1918. The success of the Mechanical Bank was apparent almost from the beginning, and the accelerated production of these items during the 80's and 90's earned for the Stevens Foundry the distinction of being the greatest producers of Mechanical Banks both with respect to varieties and quantities. While some banks were probably manufactured on contract in the earlier years, nevertheless for the greater part, all banks were made as a result of the outright purchase of patent rights, or purchase of patent rights including royalties. This, however did not apply to Charles Bailey's creations since he entered the employ of the Stevens Co. on December 1890 at the age of 56, at a fixed salary of \$125.00 monthly, as master pattern maker and perfectionist. His inventions and patents reverted to the Stevens Co. as their exclusive property, inasmuch as he was in their employ.

From a recent acquisition of 65 volumes, dating back to 1850, which include ledgers, foundry records,

time books, correspondence, and other material which graphically record many hitherto unknown facts and interesting sidelights, are found entries of specific interest which makes it possible to inject realism in the ensuing story.

A DAY AT THE FOUNDRY OCT. 7, 1890

If we are to fully enjoy our excursion to the Foundry, it will be necessary to project our imagination in order to fully enjoy and comprehend the sights we are about to see, and the people we are about to meet. Let us begin our journey, by walking down the steep incline on Nooks Hill Road, observing the entire panorama, and the group of buildings which come into view, as we descend into the valley. Arriving at the plant, we are greeted by the genial, Mr. E. S. Coe, the Secretary and Treasurer of the Company, who graciously ushers us into his



Edward S. Coe

office. Knowing the nature of our visit, Mr. Coe immediately calls our attention to the exhibit of the company's products neatly displayed in a display case, facing his desk. "Here are the banks, toys, cap pistols and some of the smaller hardware, with which we have become identified as the largest producers", exclaimed Mr. Coe. "This large safe, contains all the records and ledgers, and copies of letters and invoices sent to the trade, as well as patent papers assigned by inventors, and other important documents". "At night we secure the safe with this large padlock. "In the back room we store all our

advertising material, trade catalogs, cuts, and other pertinent material. "This Hammond typewriter, which we purchased a few years ago has proven rather difficult to manipulate, and I prefer doing all my correspondence by script and to better advantage. "This Hektograph duplicator is a simple and clever device with which we make copies of all invoices and correspondence, on tissue, and then have them bound into book form for ready reference. "Inasmuch as we are going into production on the Jumping Rope Bank at this time, I think it may be of interest to you, to reveal some of our correspondence with Mr. J. H. Bowen, the inventor of this bank. Before doing so, however, it might be well to mention the fact that Mr. Bowen is a rather difficult man to get along with. He is easily irritated and oft times misconstrues the meaning and intent of the contents of my correspondence with him. While it is true that we lean heavily upon him for the introduction of new and novel designs for banks each year, and we show him every consideration, we nevertheless must be firm with him at times, as we must maintain a degree of company policy. It was early in March of last year, 1889, that Mr. Bowen submitted the model of the Jumping Rope bank, and of course, we were highly pleased with this new and spectacular production. He had not given us anything that was pleasing to the trade for several years with the exception of the Baseball Bank, and now he insisted that the Jumping Rope be marketed as a \$2.50 item and that he receive \$2.15 per dz. royalty, or he would submit his model to another manufacturer. We were not happy at the prospect of losing the opportunity to produce this novel bank and so we wrote him this letter, which I shall read to you in confidence."

Dr. J. H. Bowen Dear Sir.

March 11, 1889

Your sample was received Saturday. We are sorry that the trundle toys were damaged in transit. Our packer was instructed to use great care in packing them, and if they were so delicate as to break under such circumstances, we do not see what show the goods would have, if they had been sent off in the regular way. The bank came in good condition, and we have looked it over today. It works nicely, and we think it a good toy. Much work will be required to perfect all parts, but that can be done. There is not as much work needed as there was on the Baseball. Several parts are too light, and some of them can be made to advantage of other materials than cast iron. As you write... it will be too costly for a dollar toy. What royalty do you want for it?

We regret that you did not complete it, as promised in former letters, in time for the coming

season. We are not making any new banks this year, and if we had received this in Jan. or even early Feb., could have finished patterns in time to have manufactured some of them for our early shipments, but it can not be done now. Trade has been earlier each year, and now our Western customers send their agents out the last of June.

Of course, we can take hold of it, and do all that we can after it is ready, but would have to lose the far away trade. Owing to advanced freight rates, all of our Pacific coast shipments are made by vessel this year. Most of them go before next Friday, and the last shipment, taking new goods, must be made early in April, as it will be six months or more, before they are landed. If we are to manufacture it, we should prefer to commence work on it now, as Mr. Frisbie has about finished his other work in this line; make all necessary patterns the next three or four months; it will take that length of time at least to perfect it, and make all needed patterns, and tools for springs, etc., and next Jan. commence making stock. We honestly believe that by so doing, by Dec. 31, 1890 the royalty and our profits would be larger than to put it on the market this year, when only part of the trade can handle it. Please let us hear from you. The writer expects to be in Phila. next week, and will arrange to meet you.

> Yours truly, The J. & E. Stevens Co. E. S. Coe

"Mr. Bowen was not in agreement with my decision to go into production on the Jumping Rope until the following year 1890, and insisted vigorously that we make all haste and have it ready for the trade this year. We wrote him as follows on March 14th...

Dr. J. H. Bowen Dear Sir. March 14, 1889

Yours of the 13th at hand. The message was not received until after we closed the foundry last night. We express the sample this A.M. We are surprised at the contents of your letter, for you write as if it was in answer to some argument from us. Since we commenced to perfect and manufacture the articles invented by you, we have paid you more than \$22,600 for royalty, and with the exception of the Baseball Bank, you have not given us anything for several years that has been pleasing to the trade. You mention the "Monkey" bank, and compare it with the "Uncle Sam" that followed. There was nothing attractive about the Monkey, and after the "Uncle Sam" came out, anyone would prefer it to the former. It is a fact, that so many iron banks have been

made, and because they have been popular, dealers have cut prices until there has been no profit left for them; that they are not looked upon with favor by the dealers. That may not be pleasant for you to consider, and it certainly is not for us, but facts are facts. The next largest manufacturer in this line has said to the writer within two months, that he was "disgusted" with the toy bank business, and that as it is a small part of their business anyway, they were thinking seriously of discontinuing it. As the larger part of our business is the manufacture of iron toys, and as we are by far the largest manufacturers in that line, we shall continue to place banks and other toys on the market. The writer has to leave on a train in a few minutes, and therefore cannot write more now. He is to call on several customers in Phila. next week, (Tuesday or Wednesday) and will call on you at that time.

> Yours truly, The J. & E. Stevens Co. E. S. Coe, Treas.

"After visiting with Mr. Bowen in Phila. I agreed to discuss the advisability of pushing for production of his new bank, with our President, Mr. Russell Frisbie. Mr. Frisbie and I, both realized that it would be a fallacy to lay everything else aside and begin immediate work on the task of perfection and production of the Jumping Rope. However, we decided to appease the adamant but prodigious inventor, and wrote him this letter, dated March 22, 1889."

Dr. J. H. Bowen Dear Sir.

We have considered the matter mentioned, and agree to make the new toy bank as soon as possible, placing them on the market as early this year as we can make the stock. We also agree to pay the royalty accepted... \$2.15 dz. if it is made a two dollar toy. If after talking with the trade, it seems desirable to make it a dollar and a half article, we suppose you will agree to a royalty of \$1.62 dz. In consideration of the manufacture of the bank at once by us, you agree to retire the trundle toy for two years from last Oct. The above covers matters as talked over by us Tuesday evening. You may forward the agreement at once, to cover a period of five years. As new figures are to follow to be used in connection with the new toy, if any shorter time is agreed upon, it will expire just as a good stock has been made, and we are not willing to perfect the article for someone else. You should also include the old banks, as several of the agreements have expired. We understand each other now, and it remains for us to push the

manufacture of the toys, and get as much out of the business for both of us, as is possible.

Yours truly, The J. & E. Stevens Co. E. S. Coe

"It has been the policy of this company", Mr. Coe continued, "to send a check in payment for royalties, together with a statement enumerating the quantity of goods sold during the quarter which are covered by the inventors patents. We remitted our usual check for the previous quarter to Mr. Bowen, dated Oct. 1, 1889, and the amount being rather small, drew a violent storm of protest, together with accusations of our inability to market his banks properly. He considered his bank inventions as being pre-eminent and public acceptance as a forgone conclusion, and could not comprehend the slackening of sales to this extent. We were also chided for not making better progress in the production of the Jumping Rope, and to which we replied in a letter dated Oct. 9, 1889".

Dr. J. H. Bowen Dear Sir. Oct. 9, 1889

Yours of the 7th is at hand.

You will remember that we have said to you more than once that toy banks are nothing like as popular as they have been in the past. As we are so largely interested in the business, probably we regret as much as anyone that such is the case, but we do not see that it can be helped. They have been popular for twenty years, and that is a long time for one line of goods to hold such a place in market. One reason why dealers do not care to push them now is because prices have been cut (as they are on yours that are or have been popular) until there is little profit left for them, and now there are so many other lines of goods in market, that they can do without banks better than they could a few years ago. Mr. Frisbie has been at work on the new bank all summer, and is finishing it as fast as possible, neglecting all other work for that. The patterns were not in shape to manufacture from, as you will see when we send you a sample. We have had a man at work for weeks on the tools, and has made some jigs for drilling, and several forms now needed besides. Mr. Frisbie hopes to finish the patterns in a few days now. He will do so as soon as possible, for he will be glad to get to other work for a change.

> Yours truly, The J. & E. Stevens Co. E.S. Coe, Secy.

"We finally went into production early in the Spring of 1890, and cast and assembled our first run of the Jumping Rope. We shipped samples to some of our best toy jobbers in the East, but orders were very slow, as the interest in the toy market was quite limited at this time of year. This is exactly what we had anticipated, and when we sent Mr. Bowen a statement of sales and royalties for the quarter ending July 1, 1890 in the amount of \$75.88, this included sales of 2 dz. Jumping Rope banks. We informed him that we have made a \$2.00 article of the bank, and will sell @ \$13.50 per dz. to the jobbing trade. We asked him not to be disturbed by the fact that only 2 dz. banks had been sold, and gave him words of encouragement to the extent that we have taken orders from nearly all of our customers for some of them, shipments to be made from July 1st to Dec. 1st."

"Mr. Bowen was considerably vexed, by the poor showing of initial orders on the best bank which had ever produced, and he wanted to know whether the Jumping Rope was too hard to make or too hard to sell". We replied in a letter dated Oct. 7, 1890 as follows....

Dr. J. H. Bowen Dear Sir. Oct. 7, 1890

Yours of the 4th at hand.

In answer to your question as to whether it is too hard to make or too hard to sell... we say <u>both</u>. Only the very best workmen that we have, (\$3.00 per day help) can put the banks together so that they will work. Patterns and tools are perfect, but there is much work on them. Some of our customers that had a case, write that they do not want the balance of those ordered as they are too costly. However, we are at work on them every day, and hope to make a much better showing, the next three months.

Yours truly, The J. & E. Stevens Co. E.S. Coe

"We continued to make stock", Mr. Coe continued, "and as the season progressed, our agents and jobbers representatives pushed the sale of this new and novel bank to the best of their sales abilities in time for the Christmas holidays". "We received orders from practically all of our old customers, but the orders were relatively small, as compared with our older numbers which had already established their sales value." "Orders were mostly for one case, and many orders for one dozen pieces. The dealers were not inclined to take the risk of stocking up with a \$2.00 bank, and ordered lightly."

Our host then turned to the records, which indicated the next statement of royalties, paid to Mr. Bowen, and dated Dec. 31, 1890 in the amount of \$373.08. "Please note", said Mr. Coe, "That during the six month period from July 1st to Dec. 31st, 1890, 102 dz. Jumping Rope banks were sold, and at \$2.15 per dz. royalty, the sum of \$219.30 covered payment for this quantity." "Very few dealers reordered the following year, and by the end of July 1891 we had orders for only 8 dz. which was a very sharp drop from the previous accounting. The total number sold to this date were 1344 and it would not be unreasonable to assume that the total number of Jumping Rope banks sold to the trade did not exceed 15 to 16 hundred. "We have a few cases left to fill an occasional order for a dozen or so, and will probably close out the balance of stock at half price at the end of the year, as we have done with the Chinaman and Monkey banks." "We suffered a considerable loss in the production of this bank and the limited sale was entirely unforeseen both by ourselves and the inventor. "Mr. Frisbie spent an entire summer perfecting the model and the patterns, together with the skills of Sigmund Weirsching and William Ward, who are highly skilled master pattern makers." After the



Russel Frisbie

the models were finally perfected, and the patterns cast, we experienced new difficulties in 'putting the bank up', as a smooth working and finished product. There was a good deal of waste in the casting process and the perforated housing required very careful pouring by only our most experienced molders. "It

was a noble venture, but the public was not ready for such an expensive bank, regardless of its comparative merits, and we never again jeopardized our interests in the manufacture of any bank which would retail for more than \$1.00."

Our host replaced the records pertaining to the subject, back in the safe, and with a gesture pointing to the Foundry, exclaimed, "I know that you will be interested in knowing what is going on in the various buildings, and meeting some of the people who are engaged in the various processes, so let us proceed to the pattern casting house", and when we have completed our trip, I will conclude by telling you about several banks which Mr. Bowen had submitted and which we refused to manufacture... one of which was 'The Man in the Moon' bank".

It was not long before we arrived at the pattern casting building, where we found Mr. William G. Keighley the master pattern maker, busily engaged in the pouring of white metal into a mold, which was to be the master pattern of an animated cigar cutter. "This cigar cutter explained Mr. Coe, "is being made on contract for Dr. Tutts, of Phila. and is lettered with advertising material... 'Dr. Tutt's Little Liver Pills'. "Mr. Bowen invented this cutter, together with the 'Pictorial Cigar Cutter' and 'I Should Smile' cutters'. "We have been pressed for delivery of these cutters by Mr. Bowen for the past six months, but have been delayed by time consumed for correcting imperfections in the patterns. The rotor on this cutter does not align properly, and we are now making new patterns".

Mr. Coe then directed us to the rear end of the shop, where we were introduced to Sigmund Weirsching and William Ward, whose aptitude in the art of perfecting and the preparation of master patterns was noteworthy. They were engaged in 'gating up' a number of bronze patterns for the Cat and Mouse bank in order to obtain multiple castings. "We use double 00 sand when casting these patterns, and great care is required in order to produce a perfect pattern." "As you can see, we can only fit four pieces into a mold... that is, two fronts and two backs, as this bank is fairly large". The master pattern must be 'worked up' to perfection with special files and emery cloth, before the bronze patterns are cast, and when these are gated, we set the gated pattern into a special mold, using 00 sand, which is prepared by mixing the sand with linseed oil, litharge, and a little water. When this hardens and we have the impression of the pattern, it is then known as a 'Pattern Flask' or 'Hard Match'. The imbedded gated pattern, which is removable, is then ready to be sent to the foundry for production in iron, and any number of molds can be made in the foundry for

quantity production using the 'Hard Match and pattern."

Leaving the pattern casting shop, we were escorted to the finishing and buffing shop. "This fine water wheel, Mr. Coe proudly exclaimed, "Has furnished us with ample power for all our needs, since the plant was started in 1843." "As you can see, it is completely enclosed and housed in the rear end of this building, and is fed by several lakes above the valley." "There is a dam and a sluice-way, by which the water is directed to the wheel, and the intermittent groaning, which you hear as the wheel revolves, is caused by years of wear, and the need for extensive repairs, which will have to be done in the near future. "The belt connected from the main-shaft on the wheel, runs to an overhead shafting to which belting is connected to a series of grinding wheels, buffing wheels, and spindles. "Charles Nelson is at the first grinding wheel and is engaged in grinding off the ends of the gates on a pile of iron castings. "George Howe is similarly engaged, while Edward Brown is placing the finished castings into the tumbling machines." "There is always a certain amount of loss due to breakage in the tumblers, which is due to a number of causes, but mostly due to fragile castings, and when the iron runs too hard and brittle." "If this trouble persists in a batch of castings, it is then necessary to place the castings in an annealing oven which softens the iron during the process, and then makes it workable both for tumbling and for drilling and tapping threads. "The man at the lathe is George S. Franklin, and he is at present boring holes in cannon barrels. "He has become very proficient in this type of operation, and sometimes continues this procedure for several months, as our sale and production of toy cannons of various sizes is quite heavy. "Mr. Franklin is also very adept in 'putting' up' the banks, and assembles them rapidly with the aid of special jigs, designed by our pattern makers. He is assisted at this work by Axel Anderson, and John Reimann, and working on a basis of piece work, they average about 80¢ to a dollar per day."

We were next escorted into the carpenter shop, where we found George Ellis, and Chas. Zeiser engaged in the making of shooks or cases from pre-cut boards. These are the cases in which the banks and other products of the foundry will be shipped. A long belt connected to the water wheel turns the shafting to which is linked, a power saw, and a number of spindles for wood turning. All the wooden handles for hammers and hatchets are turned in this shop.

Across the road we were ushered into the paint shop, and here we witnessed an array of banks which would delight any youngster from 7 to 70. On a long bench; the entire length of the shop, standing 15 to

twenty deep, are numerous groups in various stages of completion. The bright and shiny colorings add an air of gaiety to the otherwise drab and austere surroundings, and the dull gray castings seem to come to life under the skillful hands of Kate Ralph and Catherine Bond. They are both decorating Skipping Rope banks, and Kate is doing the striping and fine detail work. "Catherine has had many years of experience at the work she is doing", explained Mr. Coe, and no bank is too difficult for her to decorate. "Before decorating a new run of banks, she usually prepares several samples with varying degrees of embellishment and color schemes. The sample with the greatest appeal to the eye, then usually becomes the color pattern for the entire lot, and for those to be cast in the near future." "Catherine Bond has been in our employ since May 2, 1866, and Kate Ralph since 1865, and both are very devoted to their duties. They rarely miss a days work, and never stray very far from their immediate environs." "Kate rules the roost", so to speak, "in the paint shop, and she is always consulted when little difficulties arise in the processes of decorating, by her other associates in this craft, namely,... Amelia David, Lena Goldthorpe, Mary Rempe, and Allena Ralph." "All hands in the paint shop are paid on a 'piece work' basis, and their monthly salaries usually average about \$20.00 to \$35.00. "Kate Ralph, due to her dexterity, and her many years of experience is the highest paid worker in the paint shop, and her usual monthly salary averages between \$30.00 and \$35.00." "On the attic floor of this building", Mr. Coe continued, "are stored the barrels of pigments, in a large variety of basic colors, together with barrels of linseed oil, varnish and the other basic ingredients needed to produce a good durable and attractive finish on our products."

Leaving the paint shop, we were directed to the stock room in a building across the road. Two men were packaging banks in well made individual boxes. Another, is nailing up a case of banks, and Mr. Coe who evidently believes it may be of interest to know where these are to be shipped, informs us that this case and a case of wheel toys are destined for shipment to an old established firm in New York City... F. A. O. Schwarz, 5th Avenue and 26th Street.

Emerging from the stock room, our host called our attention to the company grocery which is situated just West of the Office Bldg. "This grocery", Mr. Coe explained, "is maintained for the convenience of our employees, the majority of whom live in the vicinity of the foundry. "Here after working hours, the men usually congregate; do their shopping of groceries if needed, while others come in for a package of 'roll your own' Bull Durham, or Chewing Tobacco. We would prefer to maintain this

grocery on a strictly cost basis to our employees, but in fairness to other merchants in Cromwell, find it expedient not to do so."

"The large bell which you see atop this building rings at 7 AM, 12 noon, and 5:30 PM. It can be heard throughout Cromwell and many of its inhabitants set their watches by the tolling of this bell. If a fire occurs in Cromwell, and the Volunteer Fire Dept. starts sounding its bell, we always augment the alarm by the continuous tolling of our own bell. "We own approximately 100 acres of woodland in the immediate vicinity of the foundry, and when a brush fire breaks out, we usually assist the Fire Dept. by calling out 15 or 20 men from the foundry.

"Before entering the foundry building", Mr. Coe remarked, "and as this is to climax our tour of the Stevens Co., it might be well to inform you of the rules and regulations to which our molders and other employees are required to adhere." "These rules and regulations have been in effect since 1850, and I shall read them for you".

RULES AND REGULATIONS TO BE OBSERVED IN J. & E. STEVENS CO. FACTORY.

- 1st 10 hours work will in all cases be required for a days work except by Foundry Workmen who work by the piece.
- 2nd The regular hours for commencing work are 7 o'clock A.M. and 12:30 P.M., Noon the regular hours for leaving off work are at 12 noon & 5 o'clock 30 Mins. P.M. The factory bell will ring at the hours as above stated both for commencing and leaving off work.
- 3rd It is expected that each workman will be in his place in the Factory promptly at the above time.
 No workman will be allowed to stop or leave his work to wash up until the factory bell rings.
- 4th It will be considered a gross violation of the rules of the factory and a departure from contract, for any workman in the employ of the company to leave or absent himself from the factory on any working day, without the previous knowledge and approval of one of the foremen or other authorized persons, except a reasonable excuse be presented for so doing. Any one wishing to leave before the regular time will report at the office.
- 5th In any and all cases of Workmen leaving the employ of the Company before the expiration of the time for which they contracted, and so failing to fulfill such contract, (without some

- reasonable or justifiable cause for so doing) they shall forfeit and pay the company any reasonable amount of damage which may be required for such disappointment and breach of contract.
- 6th Two weeks notice will in all cases be required from any and all workmen desiring to leave the employ of the Company.
- 7th No person not in the employ of the Company will be allowed in or about the works except by permission from the office. All loungers and idlers positively excluded from the premise.
- 8th It is expressly understood that any one in the employ of J. & E. S. Co. will make all contracts & bargains direct with them & not combine with any set of men to strike for higher wages. Any one not satisfied with his wages will make known his wants at the office individually as no unions of any kind or shop Committees will be recognized by this Company.
- 9th No time will be allowed by us to anyone for work performed except during the regular working hours unless by special agreement.

After concluding the reading of the company regulations, Mr. Coe beckoned to us to enter the Foundry. The time was 2:30 P.M. and there was great activity as we entered. About 30 molders were working rapidly and moving about swiftly in order to beat the deadline in another 30 minutes, as 3 P.M. is the usual pouring time, and they wanted to have as many molds ready as possible. The foundry is a vast area as compared with the other shops, and there are so many areas of interest that we found it difficult to concentrate on any particular area of activity. Our host soon took matters in hand, and leading us to a vantage point, he began by pointing out some of the best molders in the foundry.

"The molder nearest us, who is pounding the sand into the form with his fists, or hand ramming as it is called, is none other than Ed Brown, one of our best, along with Ernest Twenty, Axel Olson, Emil Swanson, Chas. Nelson, Chas. Gustafson, Erne Campanelly, Chas. Ehrhardt, Edward Winkle, William Alquist, Arthur Warner, John Gaffney, Tony Gillette, Thomas Shanley, Fred Twenty, Nels Peterson, Nels Nelson and John Rook". The others are too far distant to recognize from this point. "These men have various assignments for their days work, and a number of them usually enter the foundry before 7 A.M. in order to sift and temper the sand which they will use for the day's work ahead. "This requires

great care and experience as too much moisture in the sand will result in a poor casting, and too little moisture will result in a loss of bonding strength." The sand which we use, incidentally, is Albany Sand from the Hudson Valley district, and we have found that this sand has the proper cohesive properties necessary for our many thin and fragile castings."

"We order most of our pig iron from the Royal Dutch Iron Co., in carload lots, and we have found through analysis, and by actual use, that this iron is best suited for our needs, in the manufacture of small castings". It is soft and can be drilled and tumbled with a minimum of waste".

"The preparation and firing of the cupola furnace requires care and experience, and inasmuch as the cupola is now roaring at full blast, it will not be possible for you to witness such preparation." However, Mr. Coe continued, "I will describe briefly the procedure."

"At the rear of the foundry and immediately behind the cupola, a steeply inclined road reaches to the top of the cupola which is about 30 feet high". A small car which runs on a track is operated by a small winch connected to the steam engine. "At the bottom of the incline several loads of logs are placed in the car and dumped into the cupola from above." "The two to three foot bed of logs are then ignited with oil, and after burning down, a 3 to 4 foot bed of coke is unloaded. When this has ignited sufficiently, then a two to three foot bed of pig iron and some scrap is deposited. "The operation is then repeated with alternate layers of coke and iron, and enough iron to fill all the molds which you see neatly arranged on the foundry floor."

"There are at present about 30 molders in the foundry, and each molder has his own bench and his floor, or area where he sets down his molds in readiness for pouring. "From all appearances there must be about 3000 molds ready, as the average worker produces about 100 molds per day."

"It is almost 3 o'clock, the usual pouring time every day, and Mr. Hiram Warner, our well-liked and hard working foreman, is now looking into the eye-piece of that 2 foot extension into the cupola. "He is watching the molten iron as it is dripping through the coke, and by the rate of the dripping, and by the color he will soon determine, when the spout shall be opened and the pouring is to begin."

The foundrymen had already begun to line up on both sides of the cupola; ladles in hand, for that final and most important operation of the day.

"There she goes!", shouted Mr. Coe, as Hiram Warner gave the order to lift the long handled stopper at the spout. A one inch stream of white hot liquid iron gushed forth, and the men in quick succession, filled their clay-lined ladles and began to

run to their floor and to pour their molds. The foundry now appeared as though bedlam broke loose, as the men in quick succession poured their mold and ran back and forth from the cupola to their floor. The heavy gloves which they wear, do not entirely prevent intense heat penetration, and they stop occasionally to sprinkle some water on the long handle of the ladle, from the water enclosure located in the center of the floor. This water enclosure is fed from the lake across the road through a duct built underneath the ground. The procedure continues for at least one hour, and these hardy men; the sweat exuding from every part of their anatomy, carry on with their toilsome task, until every mold has been poured. A blue haze now pervades the upper atmosphere of foundry, as the thin streamers of smoke slowly rise upward, amid wisps of steam from the molds. The cooling process will take about 5 or 6 hours, and then the night watchman will dump the molds and extract the castings. All castings will be counted and examined, and those found imperfect will be charged against the foundryman's pay at the end of the month. The average rate of pay for foundrymen is \$2.00 per hundred molds, and their productive capacity is about 75 to 100 molds daily. Good foundrymen average about \$12.00 to \$14.00 weekly... Laborers about \$5.00 to \$7.00 weekly.

The day's work is done in the foundry and the time is about 4:30 P.M. The men are emerging from the exits, and we leave with an awareness that The J. &. E. Stevens Co. is a well integrated and well managed company.



"Let us return to the office", Mr. Coe remarked, "As I have promised to tell you about the "Man in the Moon" bank, which Mr. Bowen submitted. "Naturally, we have had to reject some models which Mr. Bowen thought were admirable, as well as the specimens of other inventors, which were either lacking originality, spectacular action, or sales appeal."

Entering the office, our host, again opened the safe, and withdrew the bound volume of duplicate letters.

"Here is the letter, which I shall read for you, regarding this bank, and incidentally, another which we rejected, which was a model of a "Cash Register" bank."

Dr. J. H. Bowen Dear Sir. January 7, 1893

Yours, also the bank duly received. We would say that we are now running our foundry on soft iron, and expect to from this time, so that we can give attention to your cutter work anytime.

We have examined "The Man in the Moon", and suppose that we must give you our opinion of it, but we do not want to, for the reason that we cannot praise it as you would like to have us. Of course, however, you want us to say just what we think of it. We are not a little surprised that you should spend your time in making a toy of so little merit. The idea is old, though the form is somewhat different from two or three sent to us in the past, which we did not think enough of to purchase at a low price. We feel that it would not be popular, and know that several of our customers would laugh at it, and pass it. After making such banks as the Tyrolese, Mule, Dog, and Chicken, we should not want to come down to such a toy having so little merit. If you do not agree with me after thinking it over, we shall not object to any arrangements which you may make with other manufacturers to produce it. The "Cat and Mouse" is far better, and yet a good many who said it was not up to our line of other banks, probably will take few of them this year.

> Yours truly, The J. & E. Stevens Co. E.S. Coe

"I will conclude with this letter which I will read in part, which refers to our rejection of the "Cash Register" bank."

May 3, 1893

... of course, we must write just what we think, and therefore are obliged to say that it is our opinion for various reasons that the article in its present shape will not sell in quantities large enough to pay anyone for perfecting and placing it on the market. First – some years ago there was a bank about that size and shape, that had one or more drawers which opened when the coin was deposited, and said drawers had pieces of candy when opened. There was a clerk behind the counter, and the front was made more pleasing than yours. The bank did not sell after the first year, though it was a dollar article.

"Mr. Bowen subsequently did make arrangements with another foundry to have "The Man in the Moon" bank manufactured, but we learned from toy jobbers that the sale of this item was extremely poor,

which vindicated our judgment in the rejection of this model", Mr. Coe concluded.

Our genial host then presented all in our group with a Mechanical Bank, as a memento of a very informative and pleasant day, at the oldest toy factory in the United States.

END



Mark Haber