George M. Stevens & Company Tower Clocks

by Frederick Shelley (CT)

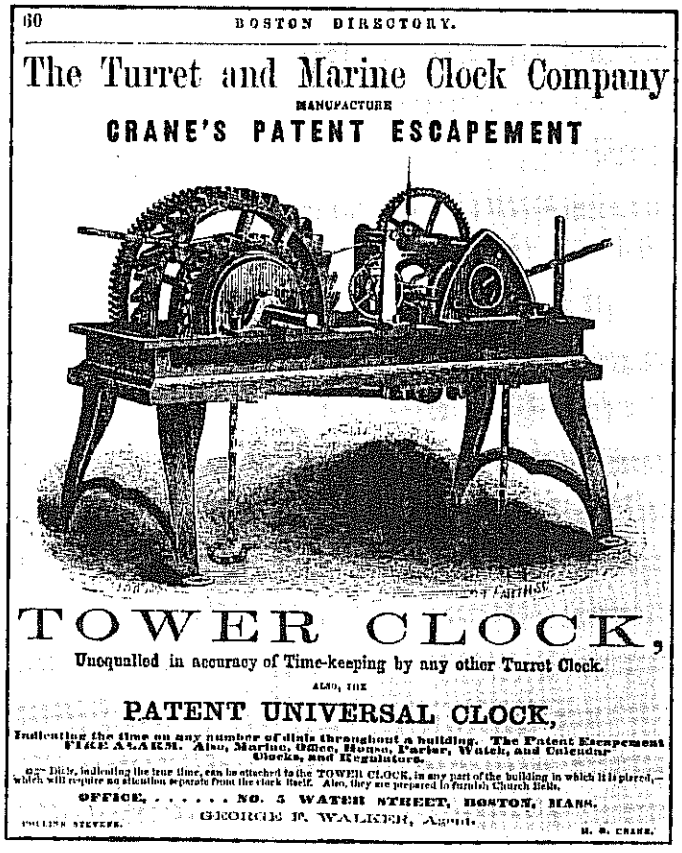
George M. Stevens was a rare bird among clockmakers—he died rich. Starting in 1864, for fifty years his company focused narrowly on the manufacture and sale of public clocks, and, to a lesser extent, on fogbell and fire alarm apparatus. His company made no major advances in horology. His earliest clocks picked up on the dramatic innovations of the Turret & Marine Clock Company (1858–62), based on the patents of Aaron Dodd Crane. Later Stevens models changed gradually, adding features of other New England makers copied from the English. Yet Stevens competed successfully with the market leader, E. Howard & Co., and, in fact, prospered. He lived in luxury in a fine home on Massachusetts Avenue in Cambridge, Massachusetts—a Willard tall clock in his front hall, and silverware, cut glass crystal, and Havilland china on his dining room table. At his death in 1917, George Stevens left a fortune in real estate and gilt-edge securities worth millions in today's dollars.

George Milton Stevens was born in Boston in 1838, one of three sons of Collins and Nancy (Geyer) Stevens. Originally from Maine, Collins Stevens was at work in Boston by 1835 and in business for himself by 1840. He manufactured the foot-shaped lasts over which shoes were made. A career change in 1859 put him with the Turret & Marine Clock Company (T&MCC), founded the previous year at 5 Water Street, Boston. His partners were Agent George F. Walker and Moses Crane, the latter being the oldest son, former apprentice and good right arm of Aaron Dodd Crane, who was in failing health and died in 1860. Financially, it was a poor time to start a business, even the Howard powerhouse was strapped for cash. Nevertheless, in the short four-year life of the T&MCC, over fifty of its unique tower clocks were sold.

Being the son of a successful entrepreneur paid off for young George Stevens. He graduated from Boston's prestigious English High School in 1856, and by 1860 was at work as a bookkeeper, setting the tone of his lifelong approach to clockmaking. The following year, his father paved his way into the clock business as a clerk with the Turret & Marine Clock Company. Meanwhile, Moses Crane, only five years older than George, had married a Stevens cousin and also inherited the patent rights on which the T&MCC operated.

Somehow, all of the above combined to cause trouble in the hen house. Moses Crane, a strong-willed inventor in his own right, quit the company in 1861, the same year patenting sprocket-chain drive features of the T&MCC clocks which he sold to an outsider. In 1862, the Stevens clan responded in kind with their own Patent No. 34,599 clock. (Figure 2.) It featured what they called the "Stevens Detached Remontoir," really only a variation on the remontoir winding system of the earlier T&MCC free pendulum escapement. In 1862, Collins and George Stevens,

Figure 1. Collins Stevens' name shown, lower left, in 1860 Boston Directory advertisement of T&MCC.


60 BOSTON DIRECTORY.

The Turret and Marine Clock Company

MANUFACTURE

CRANE'S PATENT ESCAPEMENT

TOWER CLOCK,

Unequalled in accuracy of Time-keeping by any other Turret Clock.

ALSO, THE

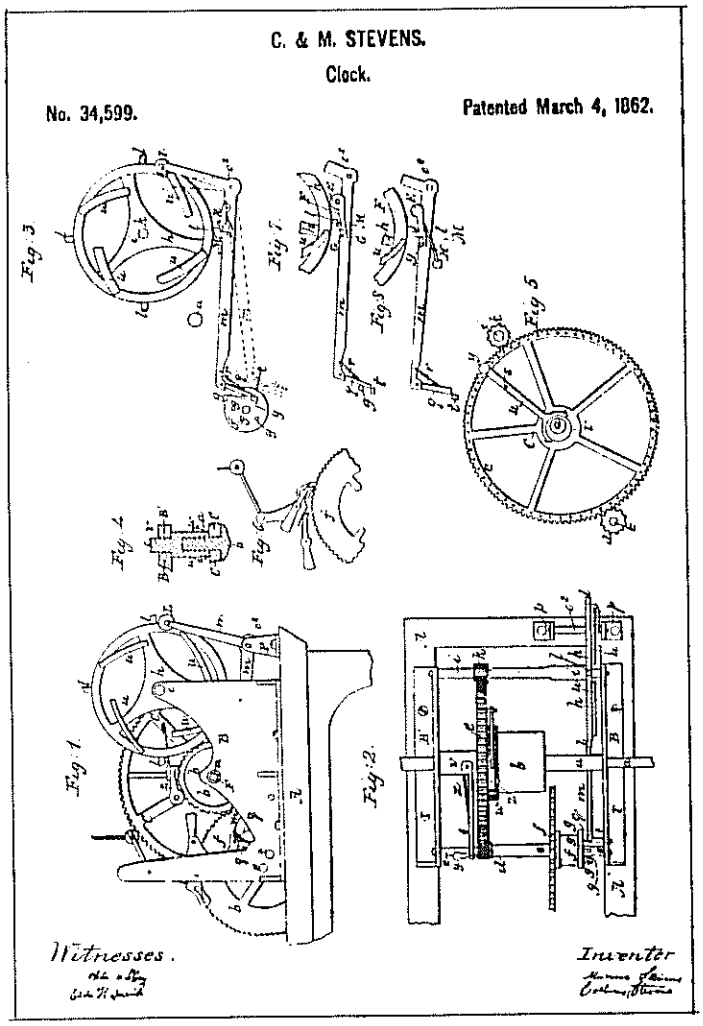
PATENT UNIVERSAL CLOCK,

Indicating the time on any number of dials throughout a building. The Patent Escapement FIRE ALARM. Also, Marine, Office, House, Parlor, Watch, and Calendar Clocks, and Regulators.

☞ Dials, indicating the true time, can be attached to the TOWER CLOCK, in any part of the building in which it is placed,—which will require no attention separate from the clock itself. Also, they are prepared to furnish Church Bells.

OFFICE, ... NO. 5 WATER STREET, BOSTON, MASS.

COLLINS STEVENS. GEORGE F. WALKER, Agent. H. S. CRANE.


C. & M. STEVENS.
Clock.
No. 34,599. Patented March 4, 1862.
Witnesses.
Inventor

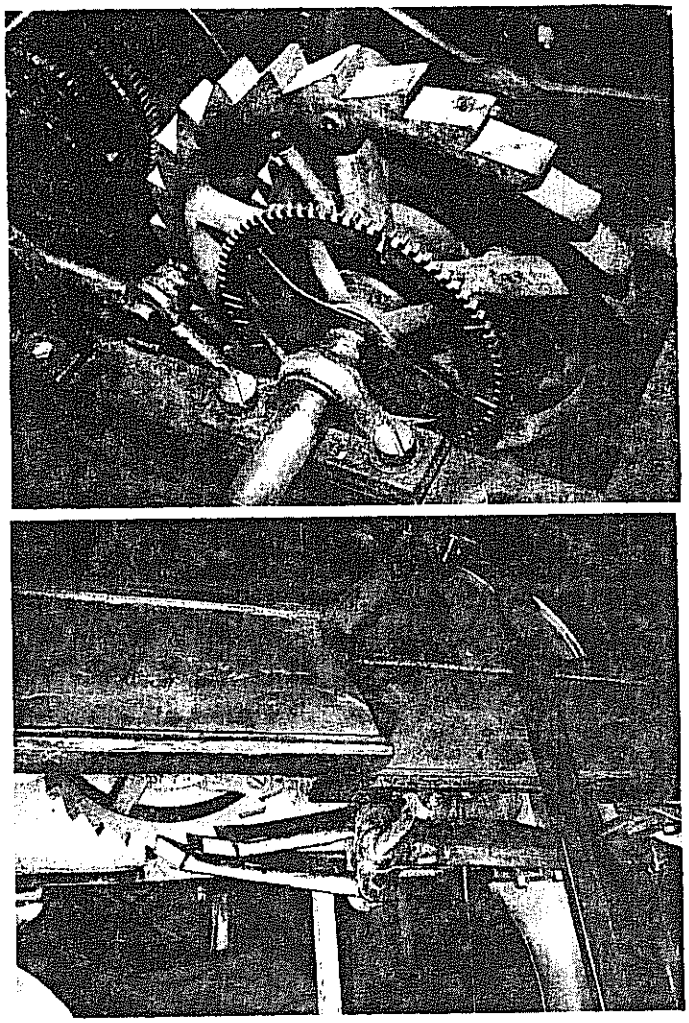


Figure 2, left. Figures 3A & B, right. Top and under views of the crane-striker as used by Stevens exclusively from 1864 to 1880; thereafter in certain models until 1900.

along with Agent George Walker, reorganized as the Turret Clock Company, remaining at the earlier location at 5 Water Street, Boston. No tower clocks bearing this name are known to have survived. In 1864, the father-and-son team reorganized again, this time as Geo. M. Stevens & Co. at 52 Sudbury Street, Boston. It is puzzling why the company took the name of the 26-year-old son rather than that of the more experienced father. Certainly, it stepped around partnership agreements Collins Stevens may have made with Moses Crane, who continued to make tower clocks on his own. In any case, the Stevens and Crane had little use for each other the rest of their lives.

The earliest surviving Stevens clock was installed in 1867. Many features are either derivative or directly copied from the earlier T&MCC clocks. These include the walking escapement, drop lever catch, hand-setting clutch, free pendulum and, most particularly, the countwheel crane-striker system.* Major differences in the early Stevens clocks were the use of conventional winding barrels on both time and strike, and their patented version of the escapement remontoir rewind system.

At least 22 of these Stevens detached remontoir clocks were made. All that remains of the earliest survivor, Number 13, is the time train and free pendulum, now on exhibit in the Wenham (MA) Historical Society Museum. (Figure 4.) Its story was told in 1909 by the local church organist who took care of it for over 50 years:

> Soon after the close of the Civil War a number of ladies of Wenham conceived the idea of procuring a town clock to be placed in the tower of the Congregational Church . . . The necessary funds for the purpose were obtained chiefly by a series of fairs, tea parties and similar entertainments . . . This clock was made by Geo. M. Stevens & Co., of Boston, and was placed in position in the church tower May 18 to 20, 1867, just 42 years ago . . . I have a distinct recollection of a remark made by the elder Mr. Stevens [Collins] after the various parts had been put together and adjusted. As he set the pendulum swinging, he said, 'There it goes, ticking our lives away.' The old gentleman's own life was ticked away a good many

* These features are discussed in detail in NAWCC BULLETIN Supplement #17, *Aaron Dodd Crane, An American Original*, by Frederick Shelley.

years ago, but the clock business is still carried on by his son at No. 15 Chardon Street, Boston . . . on March 3, 1869, it was offered as a gift to the town and was duly accepted. From that time to the present I have had the entire care of it. It has always been considered a good time-keeper and has given general satisfaction, notwithstanding like all works of human contrivance, it has had its occasional irregularities, or what might be called facetiously cranky spells. The movement is somewhat peculiar, in that the hands move only at intervals of one minute, the escape wheel being the only one in constant motion. The weights consist of strong wooden boxes filled with scrap iron, the running weight weighing between 300 and 400 pounds and the striking weight about half a ton. They have a fall of about 22 feet, and have to be wound up once a week.

Benj. H. Conant

Based on the above account, several points can be made. Geo. M. Stevens & Co. had its share of prestige business—clocks in foreign countries and in the municipal buildings of Boston, for example—but its main trade was with crossroad towns and small cities like Wenham where they could give personal attention to clock installation. In this environment the first town clock was headline news, a focus of public attention that put the town on the map. In 1895, Martha's Vineyard *Gazette* extolled the arrival of a Stevens clock in West Tinsbury, "There are few villages in Massachusetts of so small a size and limited resources that can boast so fine a public library . . . and so fine a clock and bell, each within nearly a stone's throw of each other." Almost a century later, the clock remains a source of local pride, still hand wound and tolling the hours.

Stevens clock prices varied from $350 to $600, depending on the size and number of dials and the bell, and on how much installation work could be offloaded locally. Usually supplied, along with the clock mechanism itself, were the dial hands, dial motion works, the transmission, and all rod and universal-joint connections back to the works. Also supplied were the weight cables and pulleys, plus the bell hammer and its connections. To save money, dial faces were usually painted locally, although gilt numbers and minute bits were offered. Weights and associated shipping costs were usually saved by fabricating wooden

Figure 4. The earliest known surviving Stevens, time train #13 at Wenham, MA.

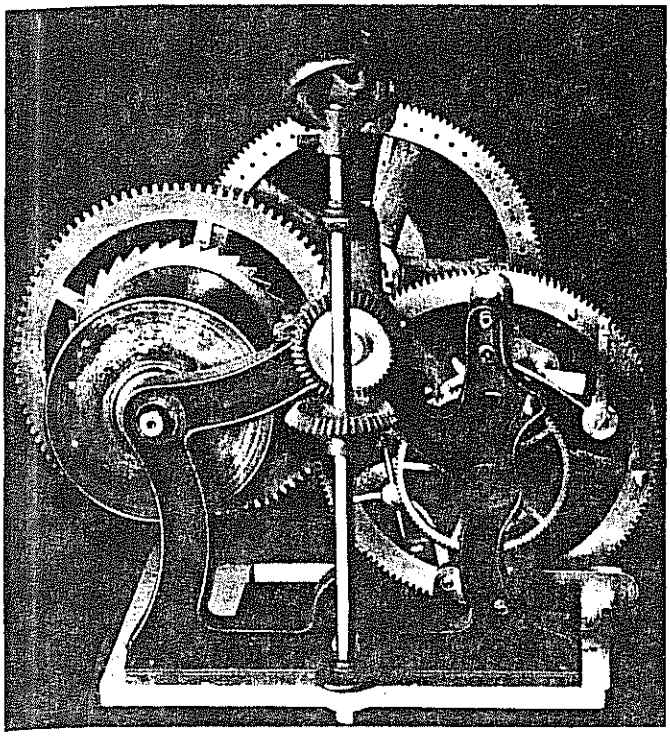
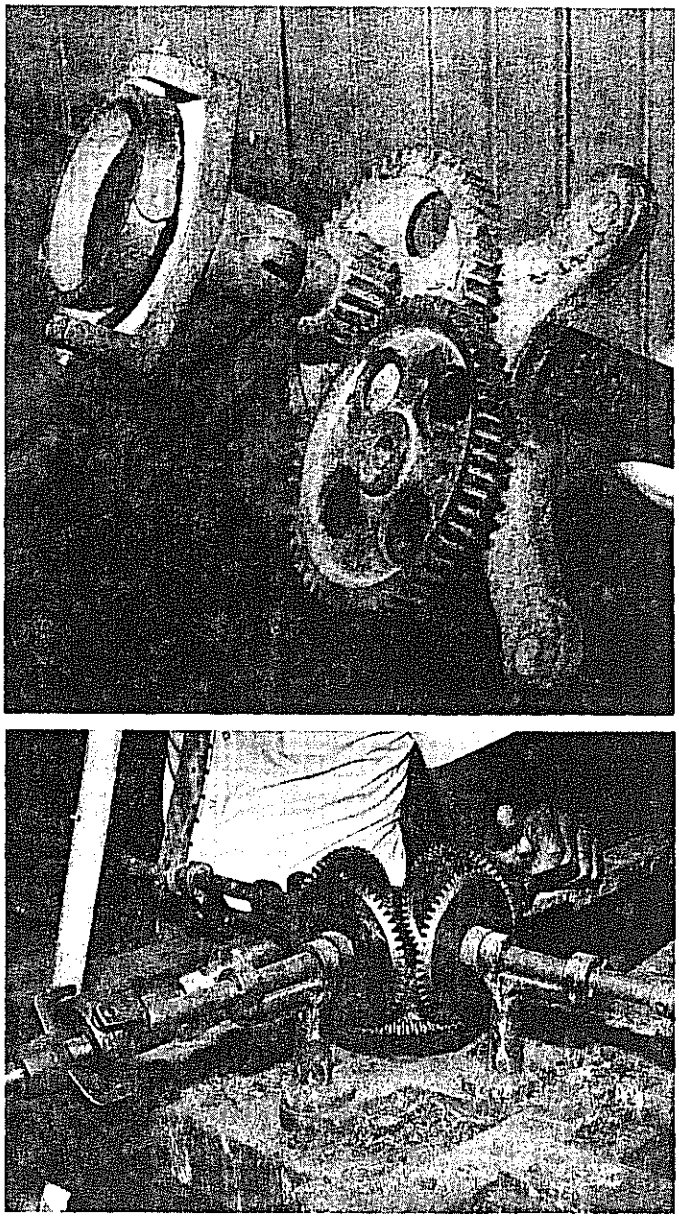
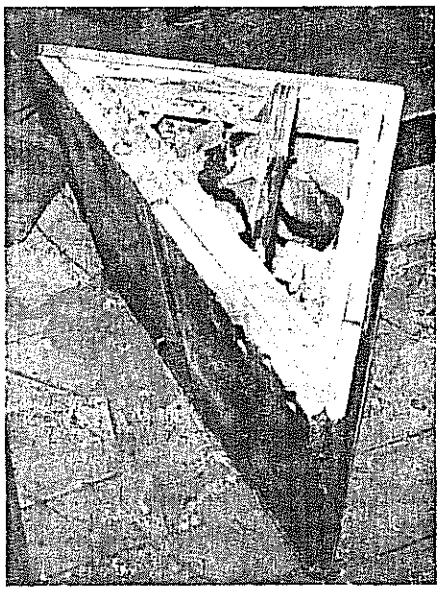


Figure 5, top. Typical Stevens dial motion work. Bottom, Stevens 4-dial transmission; both pictures show the boxy universal joints which are Stevens' footprints.





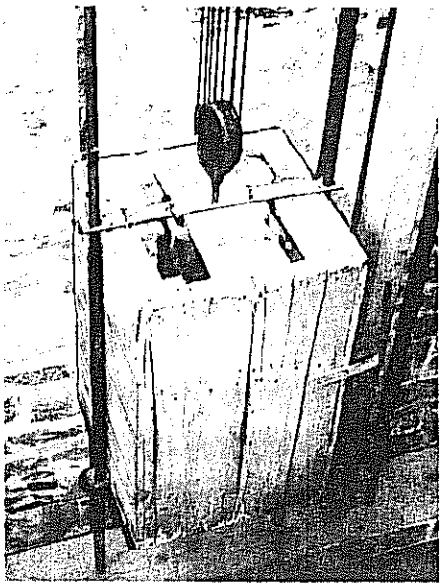


Figure 6, left and right. Weight boxes, filled with rubble, vary based on local space limitations. The left box is designed to fall in a corner chute; that on the right is double compounded to give eight days running with a short fall.

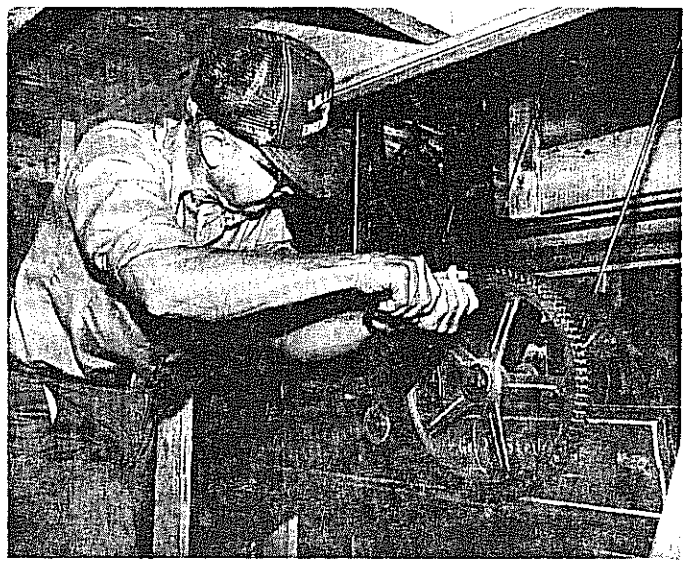
boxes on site and filling them with stone or cast iron rubble. Solid blocks of granite or soapstone were also used if available locally.

In a surprising number of instances, the first clock financing effort was inspired by town womenfolk, such as "The Little Gleaners" of Kingston, Rhode Island. They sponsored such events as basket parties, church concerts, chain letters, and auctions. In Damariscotta, Maine, the women collected a nice little nestegg which shamed a local sea captain to make up the clock cost shortfall of $200. Many clocks were outright gifts from hometown boys who succeeded in the big city, or from bequests in the wills of rich hometown widows. In Marlborough, New Hampshire, the Universalist Church was given $300 for the use of their bell as a fire alarm and they used the money to buy a Stevens clock. Town clocks were also bought with public money or by subscription under control of the Board of Selectmen. Selectmen reports itemize every penny of clock cost; for example: Clock, $350.00; Bell standards, 7.50; Freight, 3.97; Expense of setting, 22.25; Hotel bill, 5.00; Raising the bell, etc. 43.40; Total, $432.12. As town property, even though located in a church, the maintenance and winding of the mechanism was a selectman responsibility, but left open for debate was whose job it was to restore the dial painted on the church steeple.

Every week the local clockwinder faced an obstacle course of ladders, high-rise stairways and trap doors before facing the arduous task of winding the time and strike weights. Annual pay ranged from $10 to $20, or less than 40¢ a week. Benny Conant of Wenham, an educated and sophisticated man, did the job almost to his dying day, and the clock ran trouble-free for 46 years before its first overhaul by Howard in 1913. Conant was not motivated by the money but by paternal feelings for *his* machine. The annual pay for clockwinding has gone up to as much as $200, but the motivation of most of those doing the job is a dedication to keep the clock running no matter what. They are eager to show it off. The Stevens clock at Morrisville, Vermont is still handwound and running, both time and crane-strike, after 110 years; E. B. Buxton, a retired senior citizen who wound the clock for years, made a practice of donating his $100 yearly stipend back to the Senior Center where the clock is located.

In 1868, Stevens advertised "Cog-wheels of all sizes, constantly on hand or made to order." Unfortunately, no company records have been found to show the extent of Stevens' investment in foundry or heavy machine tool work or whether the company depended on outside sources for its castings and gears. Early Stevens clock gears were of both cast iron and brass, with machined working surfaces and rounded spoking left in as-cast condition and painted. After 1880, Stevens bowed to the pressures of his showboating competition, increasing the use of flashy brass gearing, with the spoking finish-ma-

Figure 7. The strike train of Stevens #87 at North Orange, MA, gets its tail twisted 180 weekly turns by clockmaker Lloyd Taylor, a WWII veteran and retired engineer.



chined flush with gear rims. The latter increased cost while serving no practical purpose.

The last Stevens remontoir clock, Number 22, was installed in 1868 in the Keene, New Hampshire, Unitarian Church. Although the building was demolished in 1893, the clock has survived complete with a larger time train than the Wenham clock, a countwheel crane-striker, free pendulum and a highly decorated flatbed frame and legs. The very next clock off the Stevens line, Number 23, was also installed in 1868 but in Camden, Maine. It is a crane-striker, with the same frame, legs and fancy paint job as the Keene clock; however, this clock introduces major changes in the time train. These include a Graham deadbeat escapement, Harrison maintaining power, two tall time plates with bushing inserts held by screws (Vulliamy) and the pendulum suspended from a bridge across the plates. With some minor changes, a series of Stevens models incorporating the same features as the Camden clock enjoyed a lively market into the 1890s.

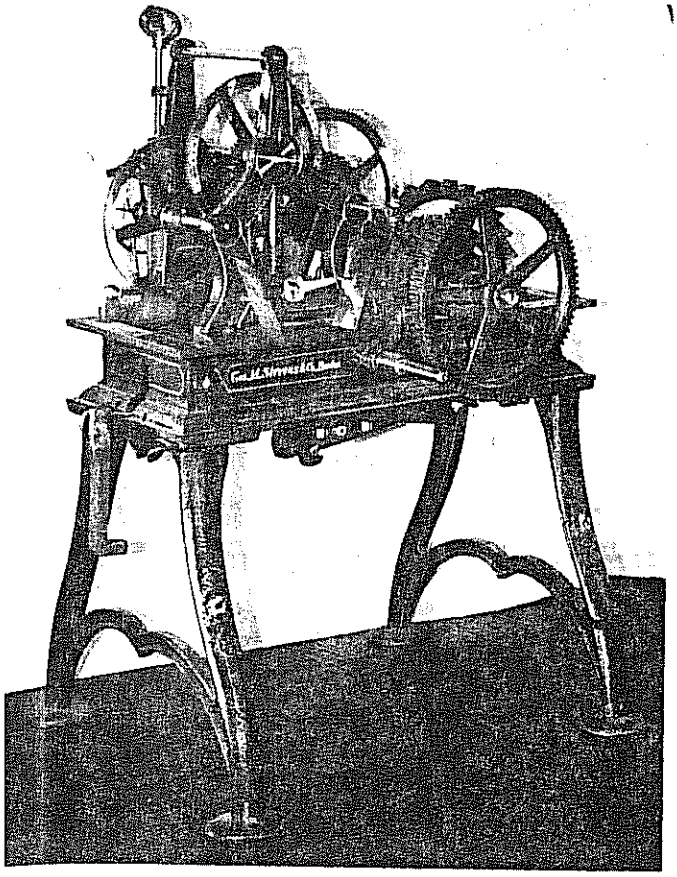
Stevens Fog Alarms

In 1869, Geo. M. Stevens & Co. moved to 90 Sudbury Street, Boston, and the same year entered into the manufacture of fog alarms. This was at the behest of the U.S. Lighthouse Service to improve upon clock-and-watchmaker Jacob Custer's fog bell ringer, then the machine of choice. Custer's machine, patented in 1858, was basically the strike train of his own tower clocks, with maintaining power added. Stevens' improvement was built around the compact and efficient crane-striker, which had caught the Lighthouse Bureau's eye. Their *Instructions to Lighthouse Keepers* for 1871 covered the use and care of both Custer and Stevens machines, the latter covered by Patent No. 141,393, Fog Alarms, in 1873. (Figure 9.) The patented, sole-source status avoided the need for competitive bidding to purchase Stevens machines, which cost about $300 and appeared in several models over the years.*

In 1883, the Gamewell Fire Alarm Telegraph Company offered its own version of the fog bell crane-striker. By 1900 they dominated the field, although Stevens remained a contender, selling two strikers costing $670 to be delivered to the lighthouse tender in New York City in 1905. He was most active "installing weather signals" along the Maine coastline, which is plagued with up to 2,500 hours of fog a year in some locations. Stevens was proud of this government connection and wisely used it as a business credential. In the 1880s, a jeweler from a small town in Maine was sent to Boston to find a suitable tower clock. He picked a Stevens with the comment, "Mr. Stevens has an excellent reputation as a manufacturer of tower clocks and does a good deal of business with the government."

* For fuller details, see Max Homfeld's "Clockwork Fog Signals," NAWCC BULLETIN No. 244, October 1986.

Figure 8, left. Stevens clock #22 from Keene, NH, and on the right, clock #23, now stored in Camden, ME. Both date from 1868.



Time Runs Out on Collins Stevens

Boston's great fire of 1872 did not interrupt the Stevens operation. In fact, they opened a branch office at 5 Cortland Street, New York City, but it was a one-year shot that did not pay off. The same year, Collins and George patented a pin-operated bell and gong striker, but it also appears to have been a dead-end.

The last patent of the father and son was for their fog alarm in 1873, the year of Collins Stevens' decline in health. Henry A. Fenn joined the company to make up for the ailing Collins, whose time ran out on December 3, 1873. For several years after, the "& Company" was dropped from the Stevens Company name, but it was restored by 1877. The same year, they advertised ". . . have constantly on hand tower clocks of superior construction in different sizes geared from 1 to 4 dials, with or without striking apparatus. Over 250 of these clocks are doing service in various localities. Catalogs furnished on application. Clockwork, electric work, models of every description made to order. An assortment of extra heavy springs on hand." The over 250 clocks in service may have been advertising hype, not unknown in clockmaking circles, but there is no mistaking that Geo. M. Stevens & Co. was entering its most prosperous period. A survey of over 90 known Stevens tower clock sites shows about 70% of its representative installations to have been made between 1875 and 1890.

ROY S. BELCHER JR., CAPTAIN USN, RETIRED.

Figure 10. Stevens penny post card correspondence with Henry S. Clarke, South Walpole, MA.

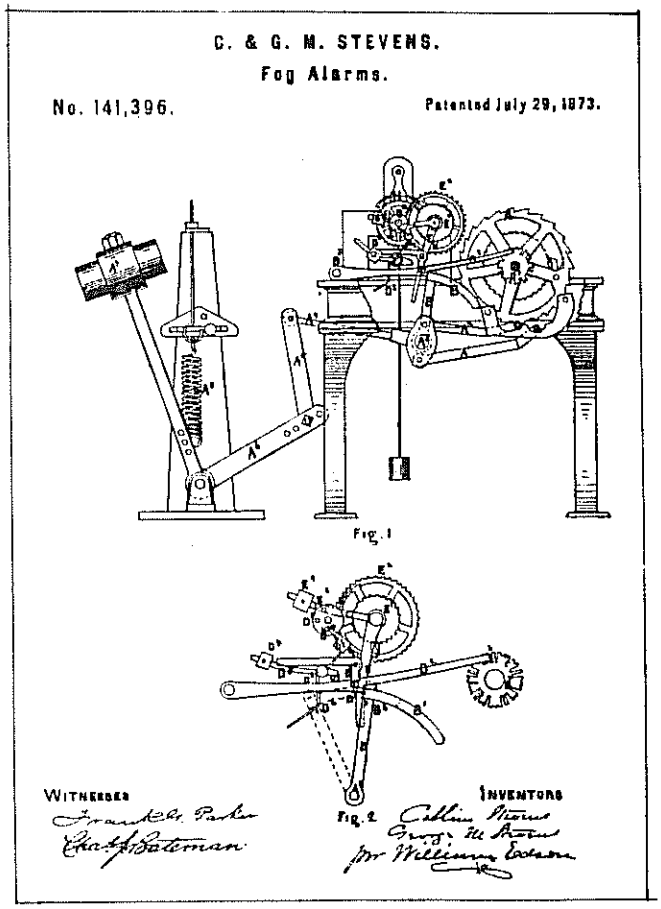


Figure 9.

Stevens and the Competition

If it was the most prosperous period, it was also the most competitive, as the personal craftsmanship of the early nineteenth century tower clockmakers gave way to the engineered sameness of the large clock corporations that dominated the market later in the century. Seth Thomas Clock Company entered the tower clock field in 1873 with the acquisition of A. S. Hotchkiss & Company, but did not really hit full stride until the 1890s. No question, the prime competition in New England was E. Howard & Company. Stevens was no match for Howard nationwide, in big cities or in special-order, large tower clocks, but before Howard's retirement there was a lively competition between the two men in small New England towns. Stevens corresponded with his clients by penny post cards illustrated with his tower clocks, thereby sending the message and advertising his wares at the lowest possible cost. In May 1876, he wrote a buyer in South Walpole, Massachusetts, "I would advise the dials be put up before the figures are on . . . Howard says he will sell his No. 2 for 25 dollars to beat me—He ought to have made the offer before you ordered—You will get a *better* clock than his No. 2. G. M. Stevens." (Figure 10.)

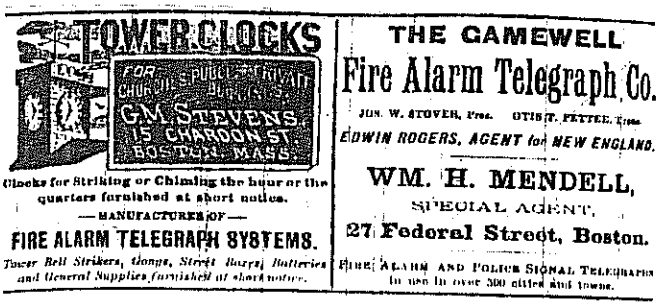


Figure 11. Stevens advertisement in 1888 Boston Directory.

Electrical Work and Fire Alarms

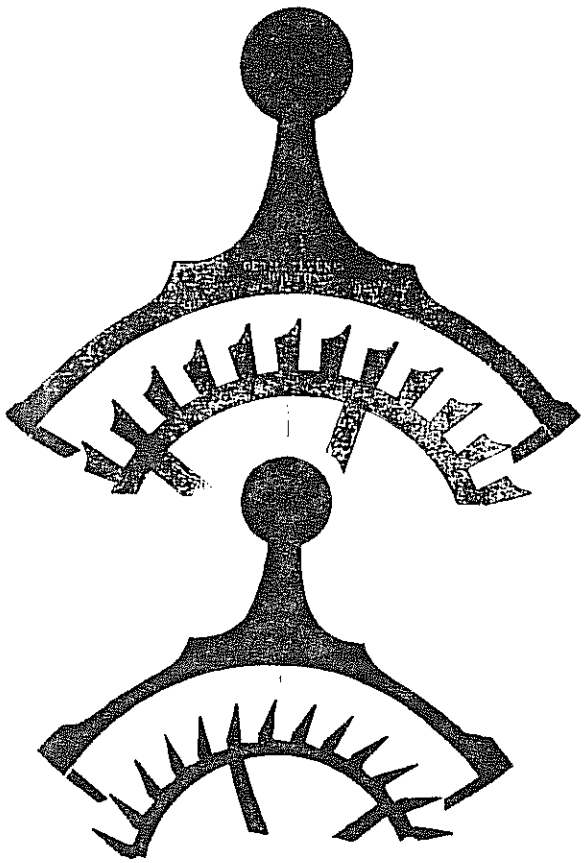
By 1880, Stevens offered "dials operated by electricity." This meant dials illuminated by electricity, as French and German glass dials from five to twelve feet in diameter were carried in stock. Like other makers of the period, he also provided automatic clock attachments to turn on-or-off gas or electric dial illumination at desired hours.

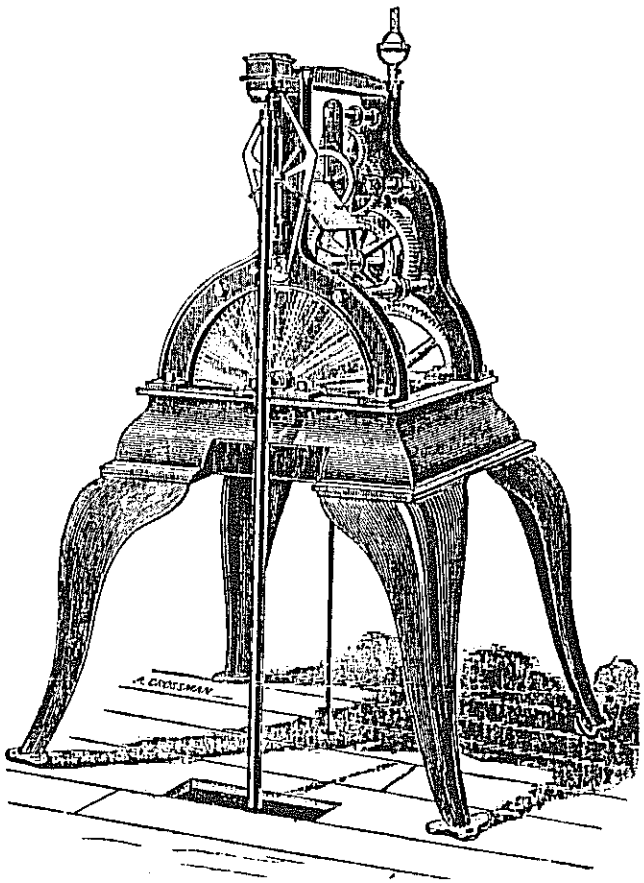
Electro-mechanical gongs and bells for fire alarms and other purposes were added to the line by 1882. Two years later the company moved to a factory at 15 Chardon Street, Boston, where they remained until George Stevens retired in 1905. This move to larger quarters coincided with an expansion of fire alarm apparatus to include tower bell-strikers, engine house gongs, street boxes, wire, and batteries, all "furnished at short notice." Not much Stevens fire alarm apparatus has survived, but it is said to resemble the Gamewell line. The clockwork of a surviving Stevens alarm indicator is signed by the U.S. Fire & Police Alarm Co., and Stevens call boxes are known to have been installed in his home city of Cambridge, Massachusetts. The largest known Stevens' system was set up in 1885 at Keene, New Hampshire, the location of a Stevens town clock installed fifteen years earlier. It included four miles of wire, five street alarm boxes with associated indicators, and cost $600.

The Grimthorpe Strike

Starting about 1880, Stevens introduced, along with the crane-striker clock which continued to be offered, a new clock model which included some of the more acceptable features of his competition. Changes included a smaller escapement with pointed teeth, a shorter 1-second pendulum and a 3-wheel strike train ending in a fan, as required by the cam-tooth strike wheel invented by Lord

Figure 12, left. Harrison deadbeat escapements used in Stevens public clocks. The top example, an earlier type, dates from 1868, measures 6⅜" across the anchor, is usually numbered and signed with the maker's name, and used on both timepieces and crane-strikers. The bottom type dates from about 1880, measures 5½" across the anchor, and is used on time-only and time/strike clocks with the Grimthorpe strike. Figure 13, right. 1880's timepiece with Grimthorpe 4-legged gravity escapement pictured in the Stevens catalog. The escapement fan is located between the plates.





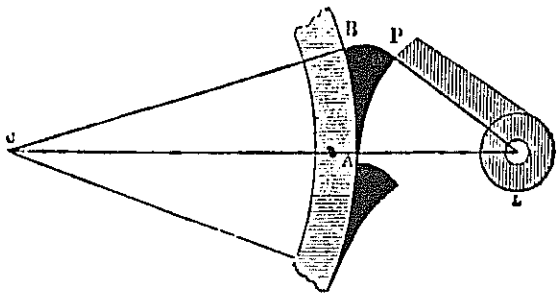


Figure 14. Lord Grimthorpe's cam-tooth strike wheel developed for the Westminster clock, and widely copied by American tower clock makers.

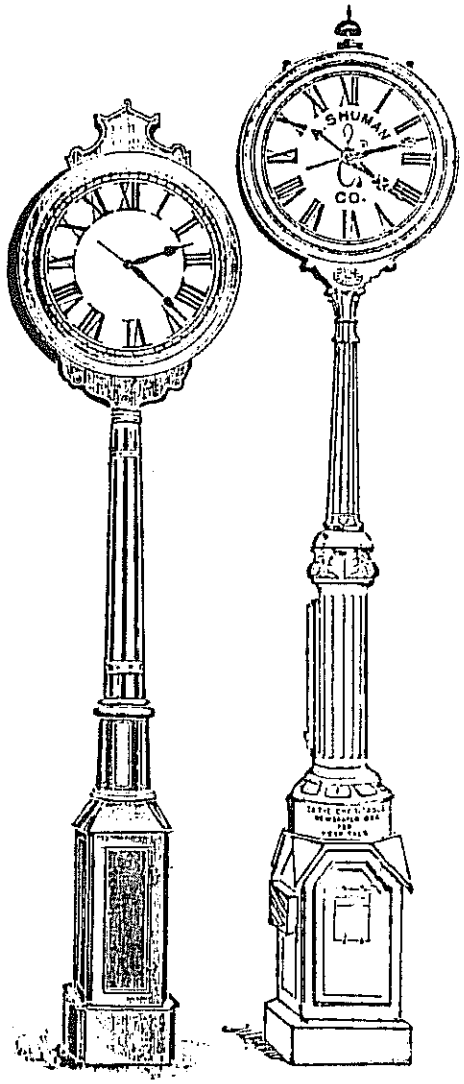
Grimthorpe for the Westminster clock in London. The Stevens catalog also offered Grimthorpe's gravity escapement. One was reported to have been installed in 1881 in the Amherst College chapel, the clock having jeweled bearings and a bell run by "electricity in the same manner as Boston fire alarms." The evidence is long gone, replaced now by an electrical system, but the Stevens dial and hands remain on the tower.

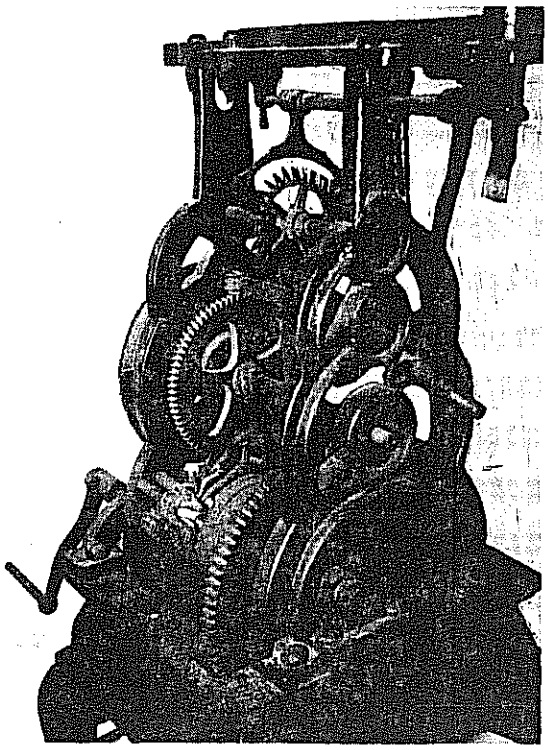
The ability to stack Grimthorpe strike wheels (as may be seen on surviving Howard quarter-strikers) simplified chiming on multiple bells, which was really impractical with the crane-striker. Stevens' use of the Grimthorpe strike resulted in efficiency losses as it only acted to *retract* the hammer, which fell by gravity on the bell. However, it did allow Stevens to offer "Clocks for striking or chiming the hour or the quarters"; none are known to have survived. In 1901, Stevens did install a weight-driven striker playing the angelus on four Meneely bells at St. Patrick's in South Lawrence, Massachusetts. The setup included a remote control house clock in the pastor's study. The Stevens angelus was replaced years ago by an all-electric system; only the old pulleys and weight chute holes remain.

Post Clocks

Also made and sold in two models were Stevens post clocks. At least four were located in downtown Boston. Post Clock No. 1 was a 15-foot high timepiece, weighing half a ton, with 30" or 36" dual dials. An example with illuminated dials was located outside Boston's Hotel Woodcock.

Post Clock No. 2 was a Stevens showpiece. The Shuman Company clock, on the corner of Washington and Summer Streets, Boston, stood 19 feet tall, had two 40" illuminated dials and weighed 3,000 pounds. It also struck the hour, as described in an 1896 *Jeweler's Circular*, "Two golden cherubs perched aloft strike the hours with hammers alternately upon a golden bell between them." The clock's movement was displayed in a glass case in the store's basement salesroom, along with a large secondary dial.





AWI MUSEUM PHOTO, LLOYD LARSH

Figure 15. Stevens post clocks Number 1 and Number 2. The photo below shows the 20" high by 10½" square Stevens post clockwork.

The Last Years

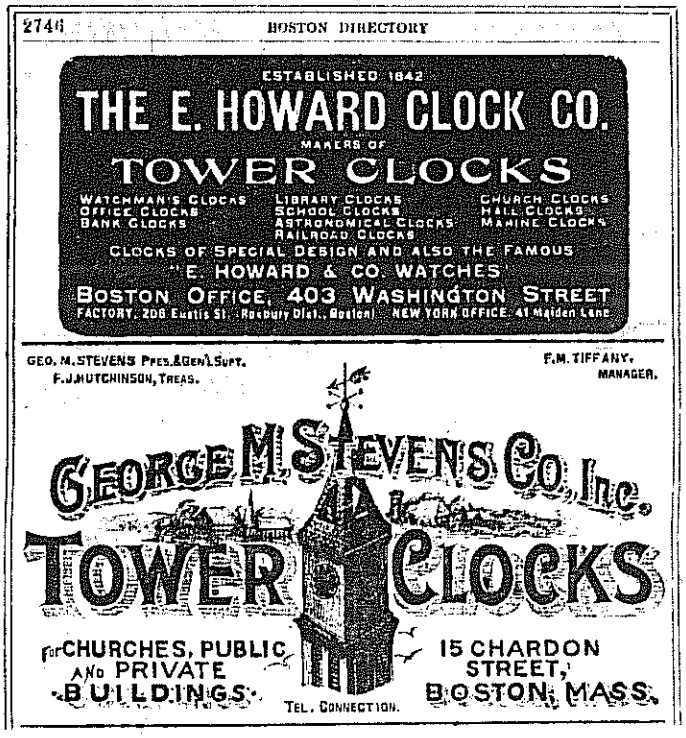
In the mid-1880s, Stevens had replaced the count wheel with rack-and-snail strike control on his Grimthorpe strike clocks. At the turn of the century, he changed the rack-and-snail configuration and added a commercial two-handed pilot dial. At least one of the earlier crane-striker models was installed as late as 1900, and is hand-wound and still running in Cornish, Maine.

In 1900, George Stevens turned sixty-two years old; he was well fixed financially and was considering retirement from an active role in the business. As a last hurrah, he put out a 28-page catalog, *George M. Stevens Company (Incorporated) Tower Clocks,* commemorating "an experience of over fifty years in the manufacture of tower clocks." It shows a number of models and lists representative installations in this country and abroad. In the same expansive spirit is the 1904 *Boston Directory* Stevens advertisement, which is slightly larger than Howard's on the same page. Stevens is shown as President and General Manager, along with two other officers who probably succeeded him in what remained of the business after his retirement in 1905. In 1909, the company moved to smaller quarters at 53 Franklin Street and is unlisted after 1916.

In 1908, George Stevens lost his wife of forty-two years, Addie L. Holden, a native of Cambridge. She left a personal estate of over $30,000 in bank accounts and real estate, unusual for a woman in her day. George was her executor, as he had been for his own father, and was to be for his father-in-law, who died in 1912 and left a modest estate. The Stevens were childless, but had a life filled with friends and relatives, including the many children of George's two brothers. After his wife's death, George's cousin, Estelle Rogers, made her home with him and tended the house. His only known outside affiliation was with the Charity Lodge of Masons. Stevens had been suffering with diabetes for several years and died in February 1917 after an illness of two months. He is buried in Cambridge, Massachusetts.

Stevens left a large and complex estate which demonstrates the high level of skill and caution he brought to money management. The excellent running account of assets he kept during his life allowed his executor to file a detailed probate report just weeks after his death. It runs over eight single-spaced pages and includes a large quantity of rather small holdings in real estate, home mortgages, blue chip utility and transportation stock, federal and municipal bonds, capped off with $15,000 in cash reserves deposited in eight banks. The bottom line appraisal of Stevens' estate was about $270,000 in 1917, worth well over ten times that amount in today's inflated dollar. He willed specific bequests to all of his relatives and several loyal employees. His household goods were similarly disposed of, except for one item of interest: a tower clock was sold for $9.00 to E. Howard Clock Co. It was Stevens' intent to have the bulk of his estate paid over in small amounts to public charities in Cambridge (non-sectarian preferred), and several $100 donations were made to the Salvation Army. However, a lion's share went to three generations of legal trustees, who fed off the estate until its depletion in 1989, seventy years after Stevens' passing.

Figure 16. Competitive Howard and Stevens advertisements in 1904 Boston Directory.



The Great Search

Existing reference sources indicate the survival of only three George M. Stevens tower clocks, dating from the 1880s. The recent surfacing of a Stevens catalog provided a list of representative installations which opened the door to the possibility of finding up to 188 clocks in 150 locations! Inspired by Lloyd Larish, The House of Clocks, Faribault, Minnesota, we rose to the challenge to explore for new information on Stevens, based on the best original source of all, the clock mechanisms themselves. Lloyd covered the states to the west and south of Pennsylvania, and the northeastern states occupied my travel plans for the next eighteen months. To expedite the search, foreign sites and large cities were passed over in favor of rural towns and small cities where church steeples and clock towers tend to stand out on the horizon. For those choosing to join the search, once a tower clock is located, differences in hand design usually identify the mechanism behind the dial. The hearts of Stevens' hands are distinguished by either a maltese cross or a clover-with-cross design, both forms also used by the Turret & Marine Clock Company.

A Few of the Towns and Cities That Have Our Tower Clocks in Operation

Altoona, Pa.
□ Ashburnham, Mass.
■ Acton, Mass.
□ Amherst, Mass.
Ancon, Peru.
■ Augusta, Me. (2 clocks)

▶● Brookline, N.H.
Brookline, Mass.
Braintree, Mass.
□ Brunswick, Me.
○ Biddeford, Me.
▶□ Berlin, Mass.
○ Beverly Farms, Mass.
Bangor, Me.
Brooklyn, N.Y.
□ Bridgewater, Mass.
Boston, Mass. (11 clocks)

■ Colebrook, N.H.
Cambridge, Mass. (2 clocks)
Canterbury, N.H.
♦ Charlestown, Mass.
○ Centerville, Mass.
▶♦ Camden, Me.
Chicago, Ill.
● Candia, N.H.
Chelsea, Mass.
Carthagena, So. America
Cheltenham, Pa.

▶■ Damariscotta, Me.
● Derry, N.H. (2 clocks)

■ Ellenville, N.Y.
Exeter, N.H.
□ East Bridgewater, Mass.
East Hartford, Conn.
East Boston, Mass. (3 clocks)
Everett, Mass. (2 clocks)
East Weymouth, Mass.
Elizabeth, N.J.

□○ Franklin, Mass. (3 clocks)

□ Grinnell, La.
○ Goshen, N.Y.
■ Groveland, Mass.

Hillsdale, Mich.
○ Holden, Mass.
Haverhill, Mass.
Havana, Cuba.
Highlandville, Mass.
□ Hope Valley, R.I.

Holyoke, Mass.
□ Hyde Park, Vt.
○ Harrison, Me.
□ Hardwick, Vt.
Hartford, Conn.
● Hollis, N.H.

□ Independence, Mo.

▶■ Johnson, Vt.

● Kingston, N.H.
▶♦ Kingston, R.I.

Lowell, Mass.
Lynn, Mass.
○ Leadville, Colo.

○ Magnolia, Mass.
♦ Milton, Vt.
○ Marlboro, N.H.
□ Milford, N.H.
▶■ Morrisville, Vt.
Middletown, N.Y.
Manville, R.I.
Malden, Mass.
■ Mechanics Falls, Me.
Manchester, N.H.
○ Marblehead, Mass.
Matteawan, N.Y.

North Attleboro, Mass.
New Bedford, Mass.
■ Newmarket, N.H.
○ North Abington, Mass.
● New Bloomfield, Pa.
▶■ North Orange, Mass.
■ New London, N.H.
New York City (7 clocks)
○ New Rochelle, N.Y.
Norfolk, Va.
North Scituate, Mass.
■ New Holland, Pa.

Oyster Bay, N.Y.
○ Oxford, Mass.
Orient Heights, Mass.

Poughkeepsie, N.Y.
Providence, R.I. (3 clocks)
♦ Pawtucket, R.I. (4 clocks)
▶● Pepperell, Mass.
▶♦ Provincetown, Mass.
○ Phenix, R.I.
Porto Rico, W.I.
Pictou, N.S.
Philadelphia, Pa. (7 clocks)
○ Portland, Me.

Putam, Conn.
♦ Paxton, Mass.
Plainfield, N.J.

○ Randolph, Mass.
□ Reading, Mass.
□ Rutland, Mass.
♦ Roxbury, Vt.
Rio Janeiro, Brazil (2 clocks)
□ Raymond, N.H.
● Roslindale, Mass.

□ South Hanson, Mass.
□ Southbridge, Mass.
South Hadley, Mass.
St. Martins, N.B.
Sacarrappa, Me.
South Hingham, Mass.
▶● South Walpole, Mass.
South Natick, Mass.
■ Salem, Mass.
● South Berwick, Me.
▶● South Sudbury, Mass.
Swampscott, Mass.
Saugus, Mass.
○ Salt Lake City, Utah.
● Sing Sing, N.Y.
□ Summit, N.J.
♦ Stowe, Vt.

■ Topsfield, Mass.
□ Tuckerton, N.J.
○ Troy, N.Y.

Valparaiso, Chili.

West Quincy, Mass.
■ Wales, Mass.
○ West Troy, N.Y.
■ Winchendon, Mass.
Washington, D.C. (2 clocks)
Wickford, R.I.
♦ Weston, Mass.
▶■ Weston, Vt.
□ Weston, W. Va.
■ West Tisbury, Mass.
■ Wilton, N.H.
□ Warren, Mass.
♦ Wellesley, Mass.
Waverly, Mass.
□ Webster, Mass.
Winthrop, Mass.
♦ Wenham, Mass.
□ Wilmington, Mass.
West NewBrighton, S.I.

■ Yankton, Dak.
□ York Village, Me.
And many others.

Unlisted installations
□ Bryantville, MA
■ Cornish, ME
● E. Barnstable, MA
● E. New Gloucester, ME
■ Enosburg Falls, VT
● Jaffry Center, NH
■ Holland, MA
□ Lawrence, MA
♦ Keene, NH
♦ Montpelier, VT
● Saco, ME
♦ Stow, MA
● Tewksbury, MA
● Windham, NY

Table developed from the Stevens catalog showing representative installations of Stevens tower clocks.

Survey legend
■ As installed, hand wound
● As installed, electrified
♦ Museum, collector or storage
▶ Floating hammer
□ Stevens replaced or building gone
○ No trace of Stevens

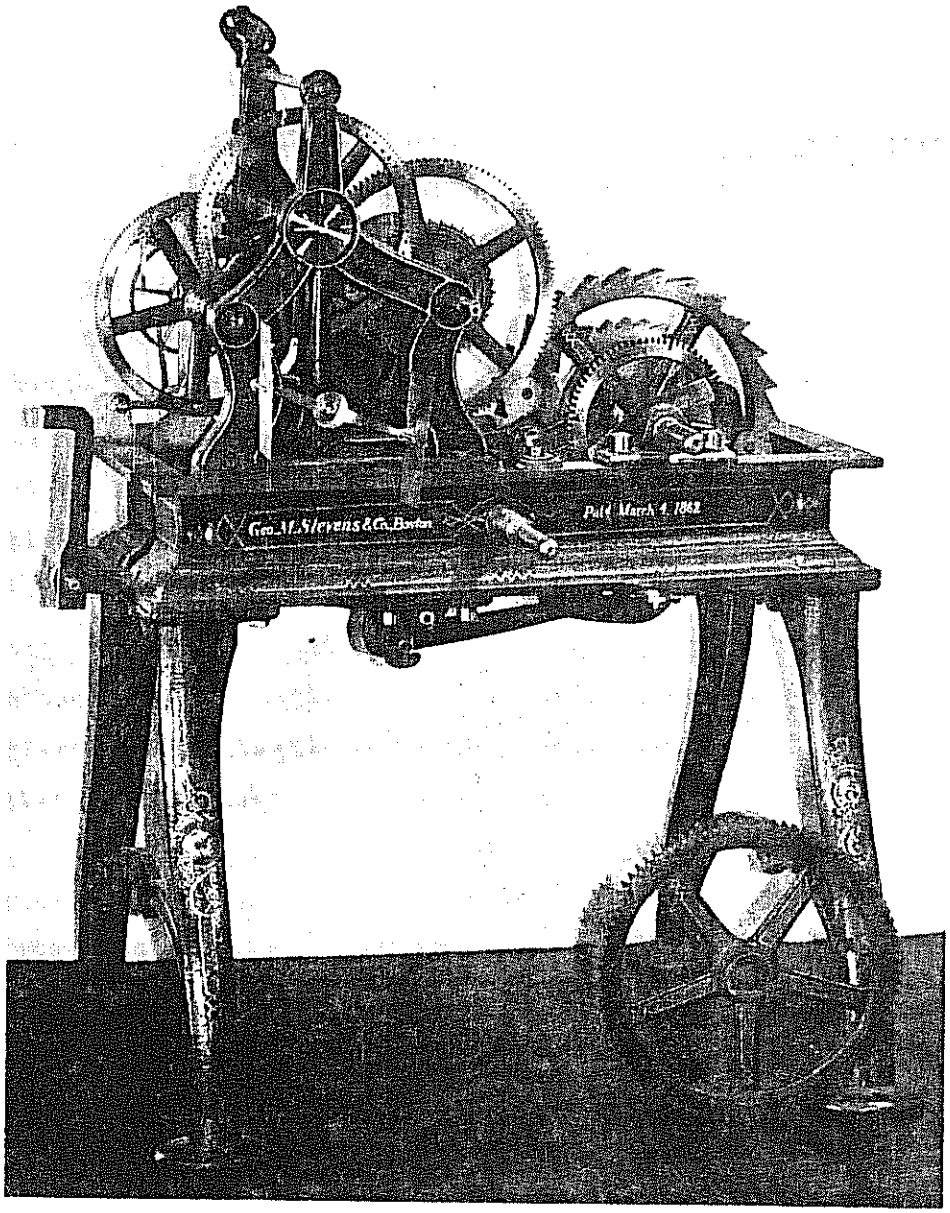


Figure 19. Stevens Model 1 "detached remontoir" clock, installed at Keene, NH, in 1867. 47" high overall, the flatbed frame is 34" wide by 16½" deep. Painted black, it has the maker name and patent date painted in white, with elaborate detailing in gold, blue and red. Time train with remontoir fan is at left, crane-striker at right. (See color photo on front cover.)

Model 1, 1864–1868

Model 1 descends directly from the clocks of the Turret & Marine Clock Co, where Collins Stevens was a partner. With minor changes, it has the same square-sided flatbed frame, leg form, countwheel crane-striker, hand-setting clutch and free pendulum. It uses the same spring remontoir walking escapement. However, it is cable rather than sprocket-chain driven, requiring a frame offset to mount the strike barrel which uses *two* clicks on its winding ratchet. It uses the Stevens patented "detached remontoir" with a fan governor. The 4-wheel time train pivots in brass bushings press-fit into free-form, cast iron plates.

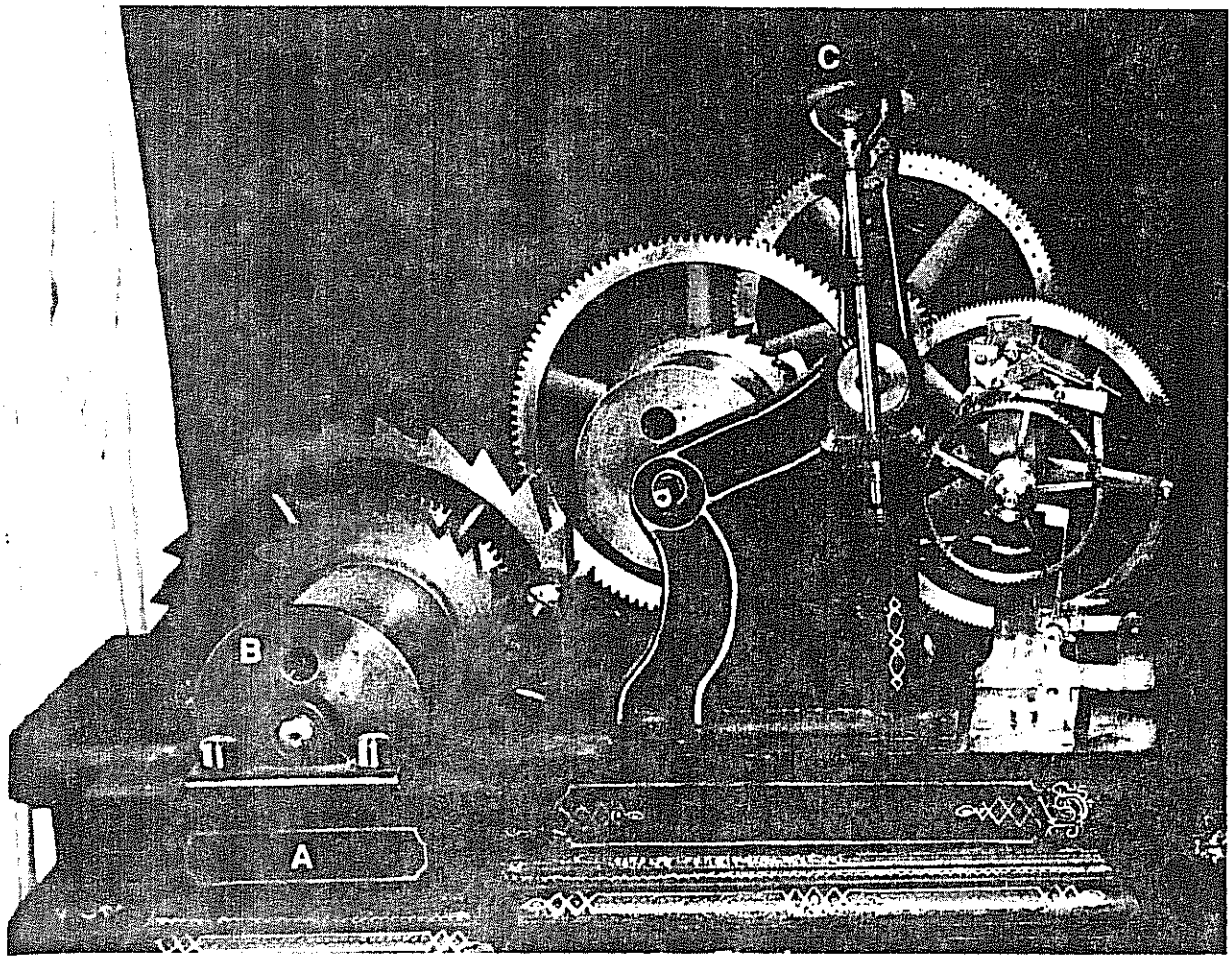


Figure 20. Model 1 rear view. Typical Stevens frame offset at A to accommodate crane-striker barrel B; dial hand takeoff is at C.

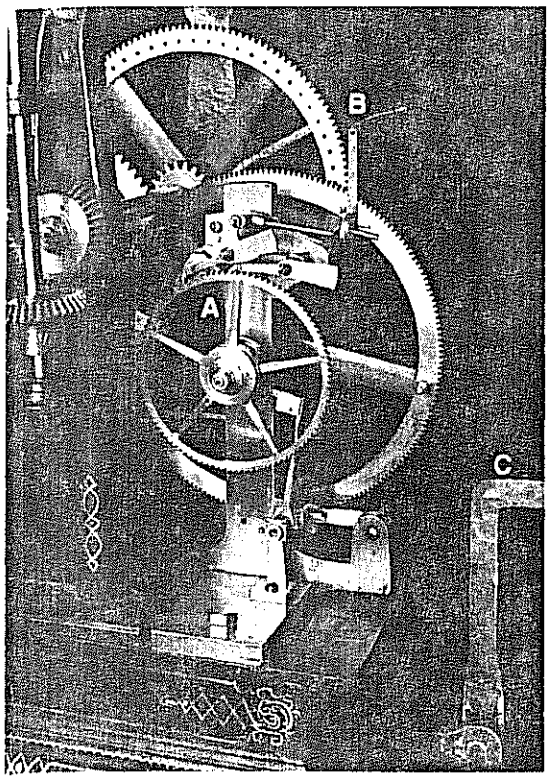
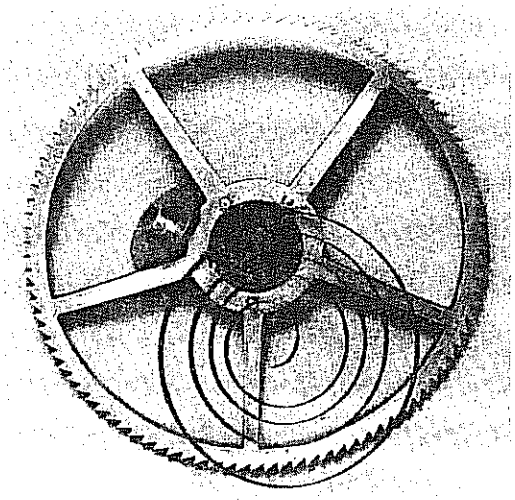


Figure 21, left. Model 1 rear view detail. At A is the walking escapement, driving the free pendulum from B. At C is the crane-striker connection to the bell hammer.

Figure 22. As with the T&MCC escapement, a light remontoir spring located in the hub of the Model 1 escape wheel is rewound once a minute.



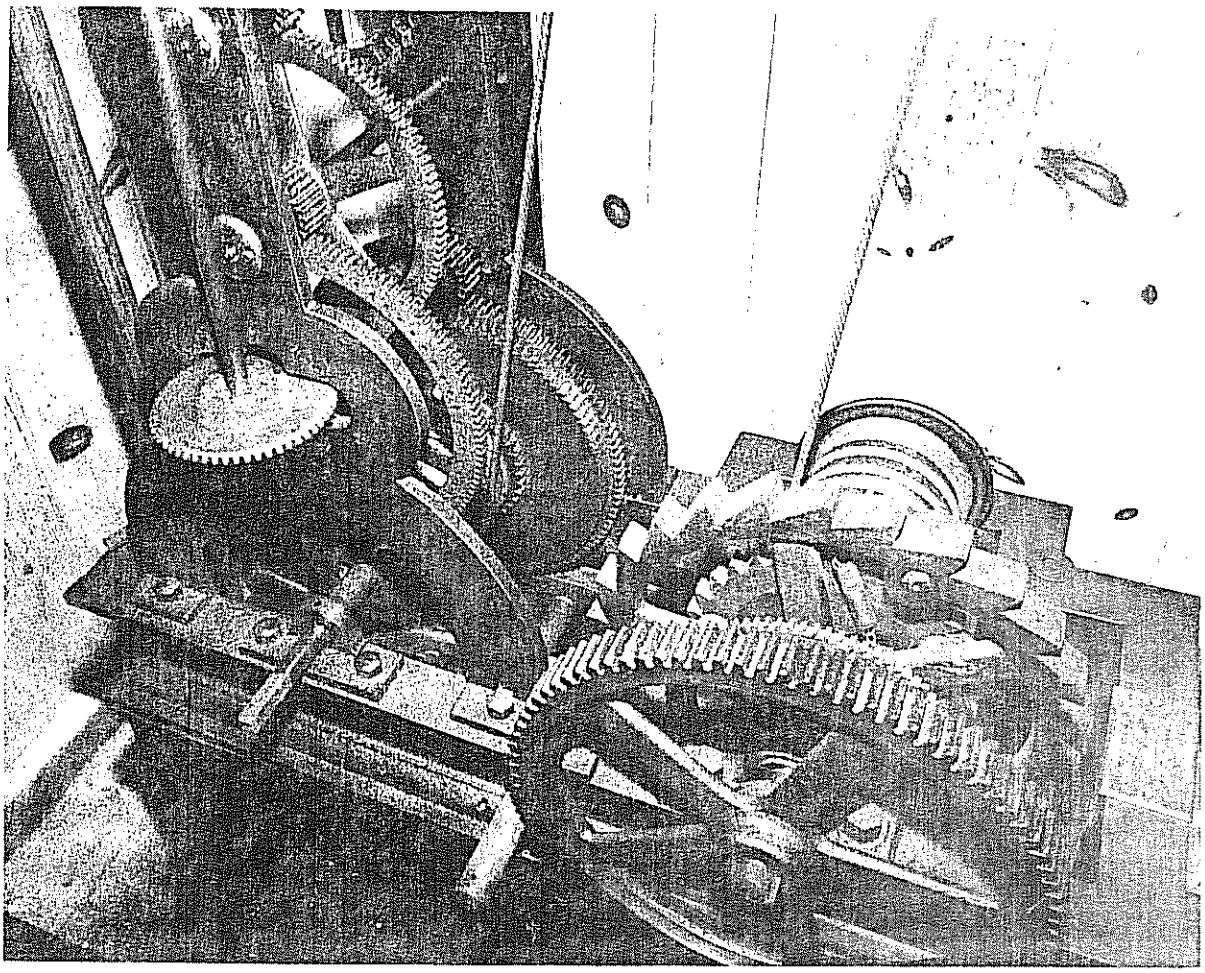


Figure 23. Installed in Winchenden, MA, in 1871, this Model 2 Stevens still runs handwound. Its cast-iron frame, legs and time plates are painted reddish tan with black and white trim.

Model 2, 1868–72

Model 2 introduces a completely redesigned time train with many new features used on subsequent crane-striker models to 1900. These include a sturdy deadbeat escapement with replaceable steel pallets, Harrison maintaining power, and brass bushing inserts held by screws. The 4-wheel time train is mounted between 26" high flat plates, topped by a bridge from which a conventional crutch-driven pendulum is suspended. Thumbnut adjustment is provided to fine-tune the 1½-second pendulum's length and beat. The strike is tripped by lever action on a snail cam mounted on the #2 time wheel shaft.

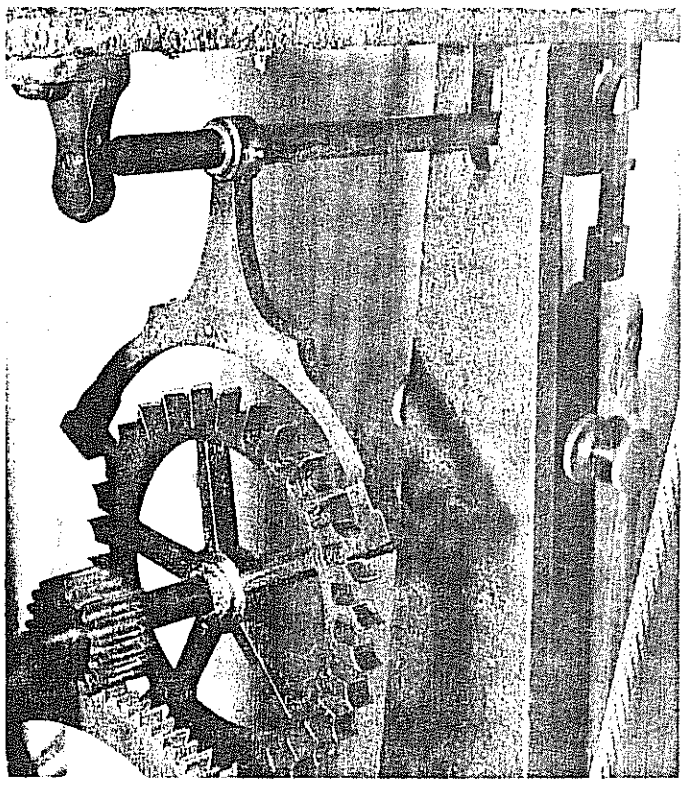


Figure 24. Model 2 Graham deadbeat escapement with the maker's name and number 42 stamped on the side of a brass anchor with replaceable steel pallets.

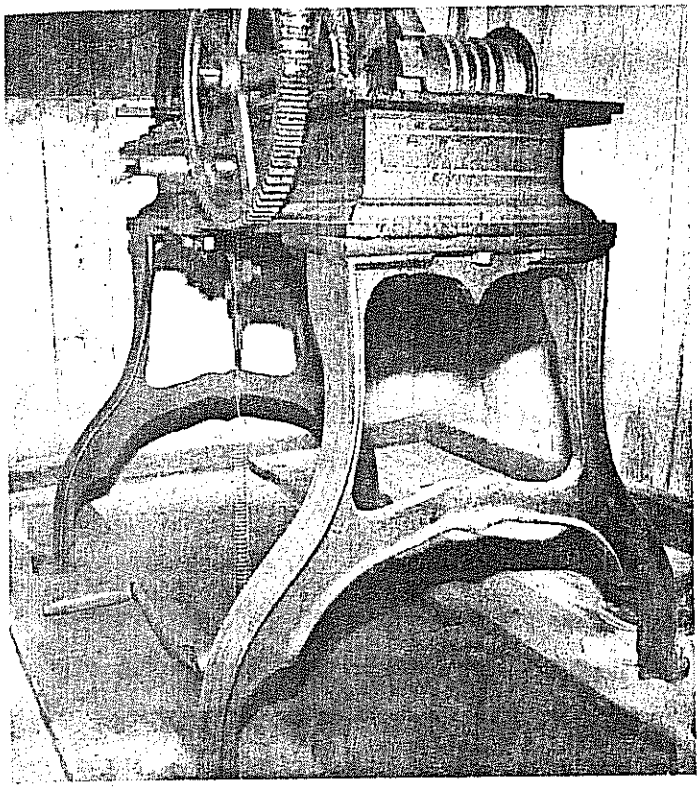
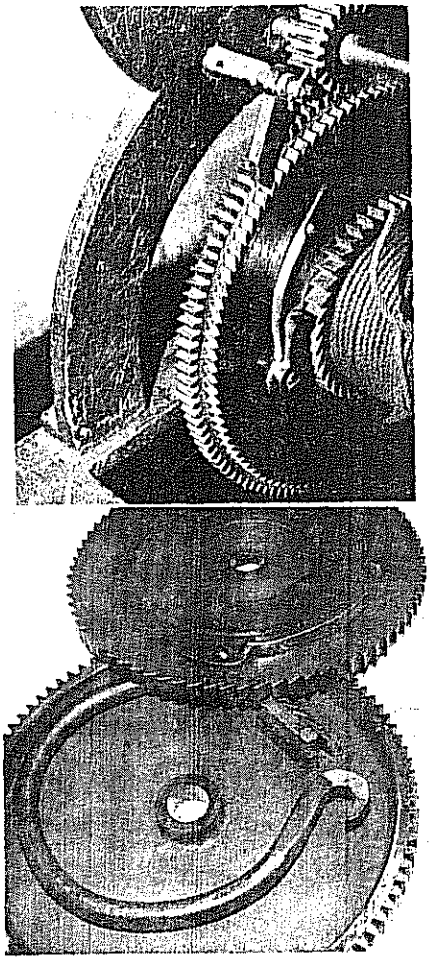
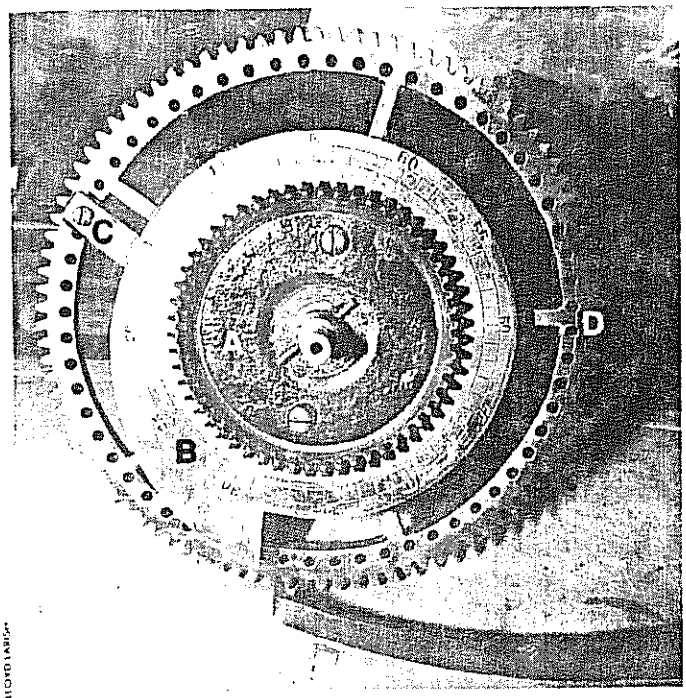


Figure 25. Model 2 straight-sided flatbed frame and a slight leg variation from Model 1. Two cranks are required to wind a Stevens striking clock.



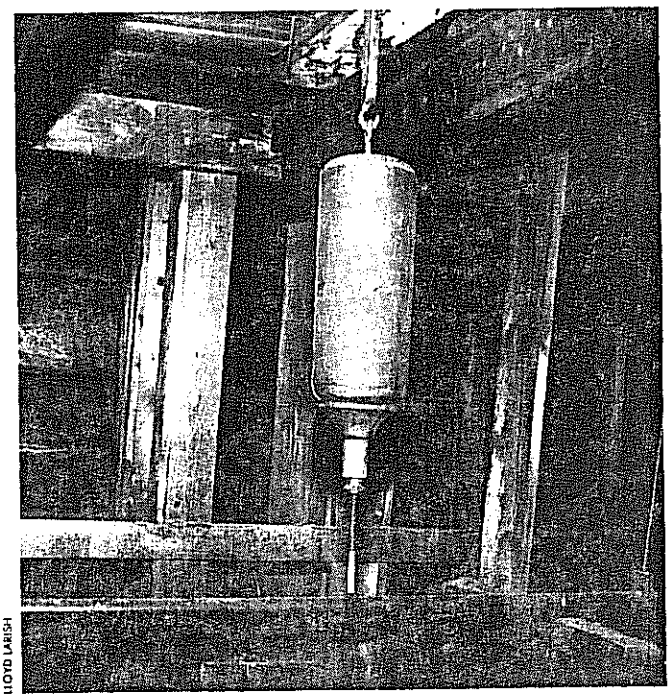
Figures 26A & B. Harrison maintaining, shown here in both assembled and disassembled views, was introduced in Model 2 and used in all subsequent Stevens clocks.

Figure 27. Also first used in Model 2 and in following models, #2 time wheel assembly. Bevel gear A drives takeoff connection to dials; strike trip snail B doubles as a pilot dial; hand-setting clutch C can be shifted to engage one of 60 holes around the perimeter of fixed #2 time gear D. A, B, and C turn as a unit.



LLOYD LARISH

Figure 28. Replacing the lenticular form of Model 1's free pendulum is the long cylindrical bob of Model 2, connected by hook and eye to a wooden pendulum rod extending below clock floor level.



LLOYD LARISH

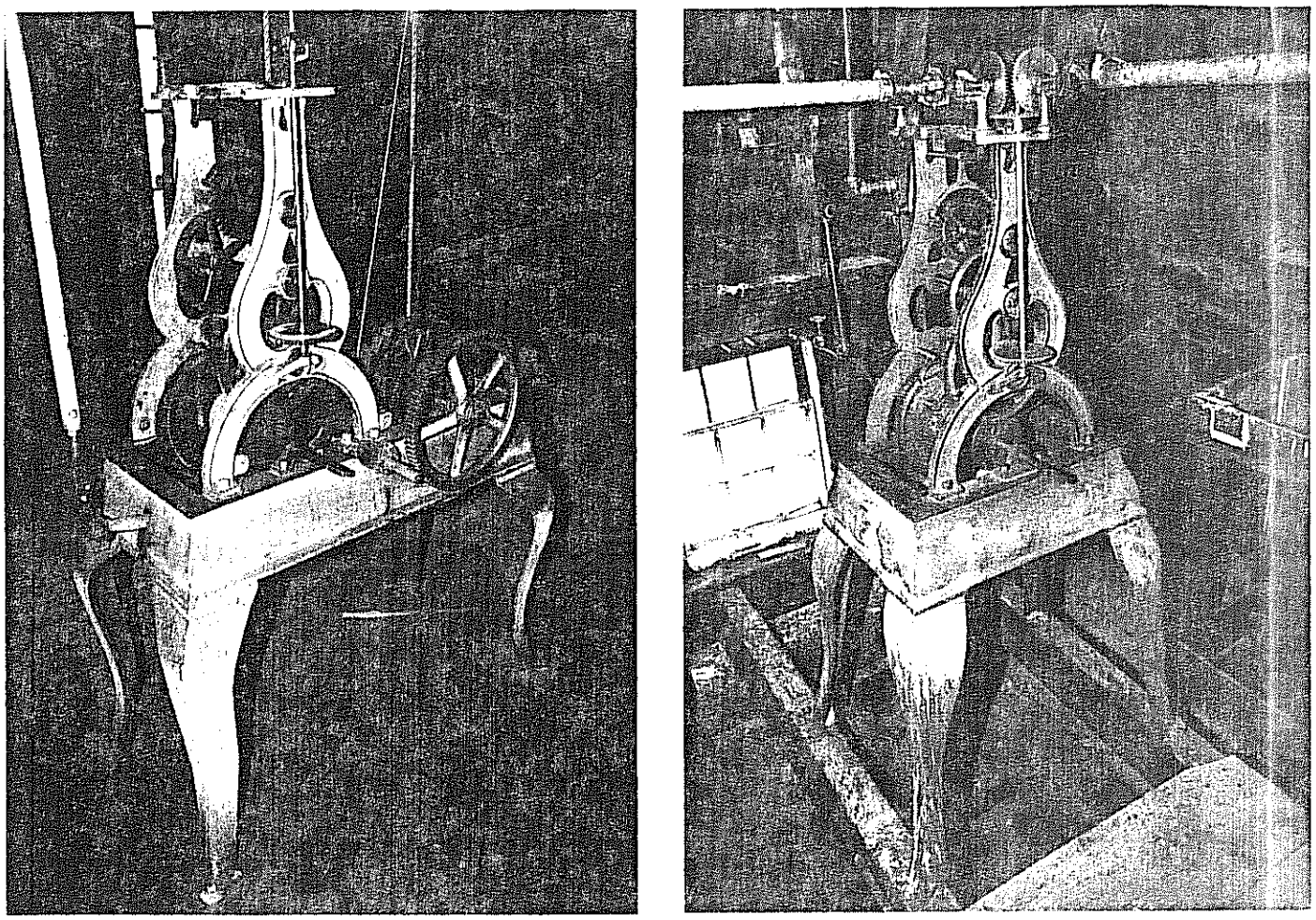


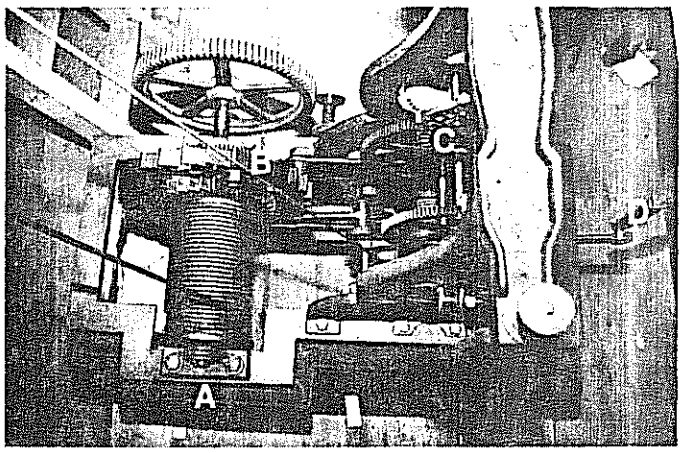
Figure 29. On the left, Model 3A clock #88 from Ellenville, NY, in 1874, features the new time-plate design, curve-sided frame and cabriole legs. It measures 60" high, with a 38" wide by 18" deep flatbed frame. On the right, Model 3A #50 was installed in Topsfield, MA, town hall in 1879. The timepiece frame measures 24" wide by 17½" deep. The clock is mounted on the same level as the dials, allowing transmission mount on time plate bridge.

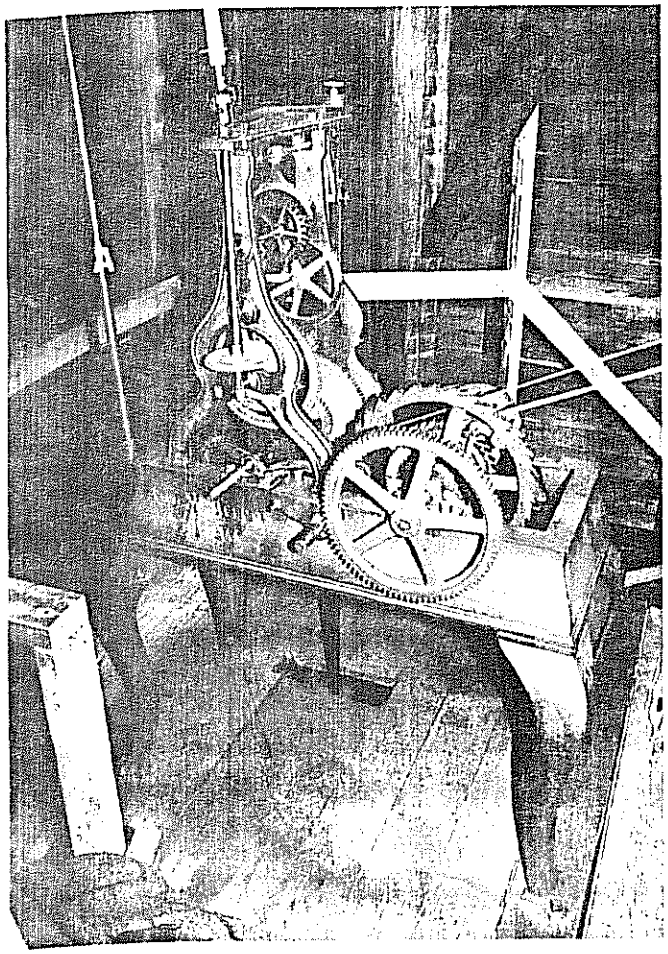
Model 3, 1874–1900

Basically unchanged mechanically, Model 3 has stylistic changes useful in dating three variations that appeared over the years. In 1870, Howard "fancied up" his earlier, klunky tower clocks with a *cyma reversa* curve-sided flatbed frame and graceful cabriole legs. By 1874, Stevens picked up on this fashion note with a less elegant but sturdier version of his own that was used on all subsequent models.

Model 3A, 1874–1878 first introduced the new profile, along with an improved design and edge beading on the time plate castings. Six of these clocks are known to have survived, three with the floating hammer bell striker.

Figure 30. Pigeon-eye view of Model 3A clock #73, installed in North Orange, MA, in 1876. Note characteristic Stevens frame offset at A for strike barrel. Crane-striker ratchet is at B and Graham deadbeat escapement at C. Striker connection to the bell hammer is at D.





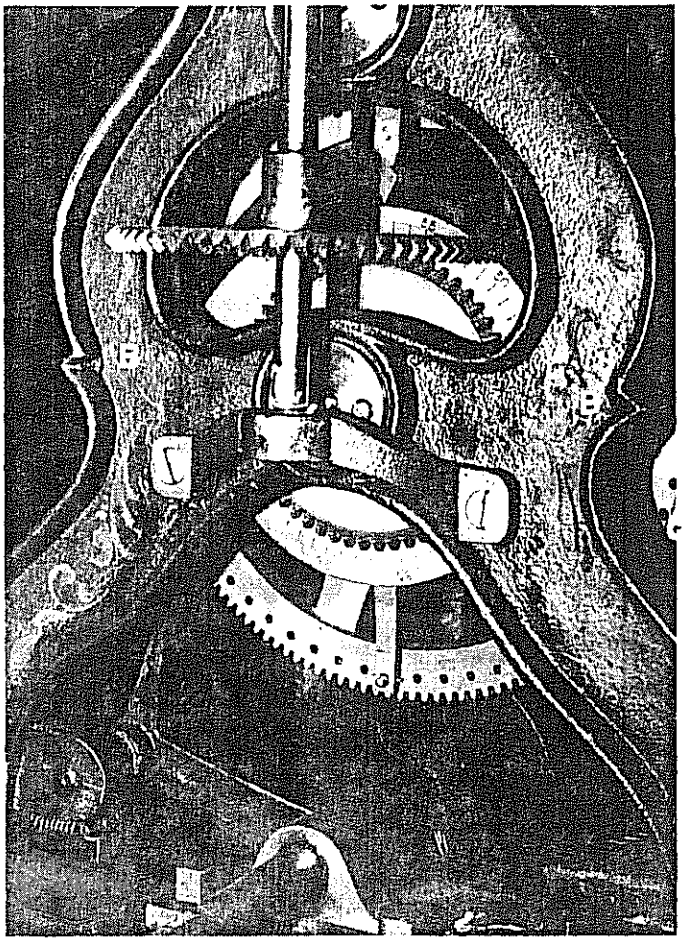
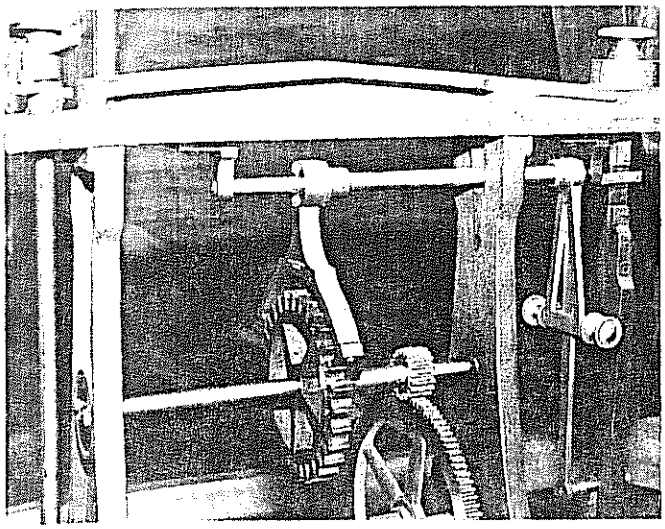


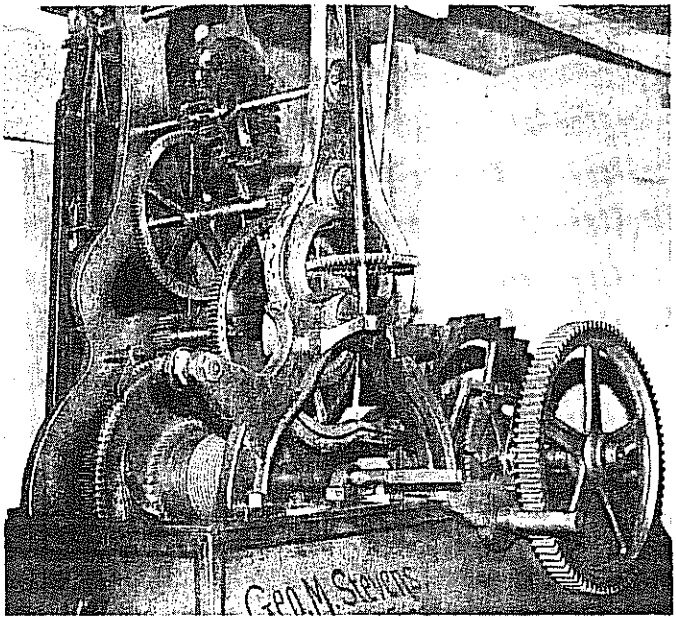
Figure 31, left. This model clock was installed in Morrisville, VT, in 1882. It is painted green with black trim, and is unnumbered (typical after 1880). At A is a solid rod connection to its floating hammer (see Figure 18). Figure 32, right. Model 3B detail; note distinctive step on both sides of the curved plates at B, and the pilot dial pointer at C.

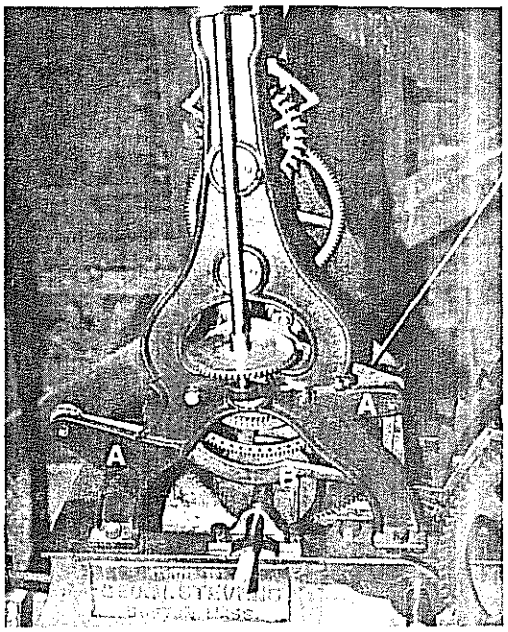
Figure 33. Typical Model 3 time-plate bridge and thumbnut adjustments to pendulum length and beat.



Model 3B, 1879–1885 differs from Model 3A only in the hourglass curve of its time plates and changes in strike lever connections. This model is noteworthy as Stevens most successful tower clock, eleven having been located, eight of which are running and handwound. Five utilize the unique floating hammer.

Model 3C, 1885–1900 differs only in two large outriders seemingly patched on to the front time plate of Model 3B. (Figures 34 and 35.) These were probably added to improve the time-strike lever connections, a change which served to extend the life of Model 3 clocks to the end of the century. Only four are known to have survived; one is on display at Old Sturbridge Village clock museum.



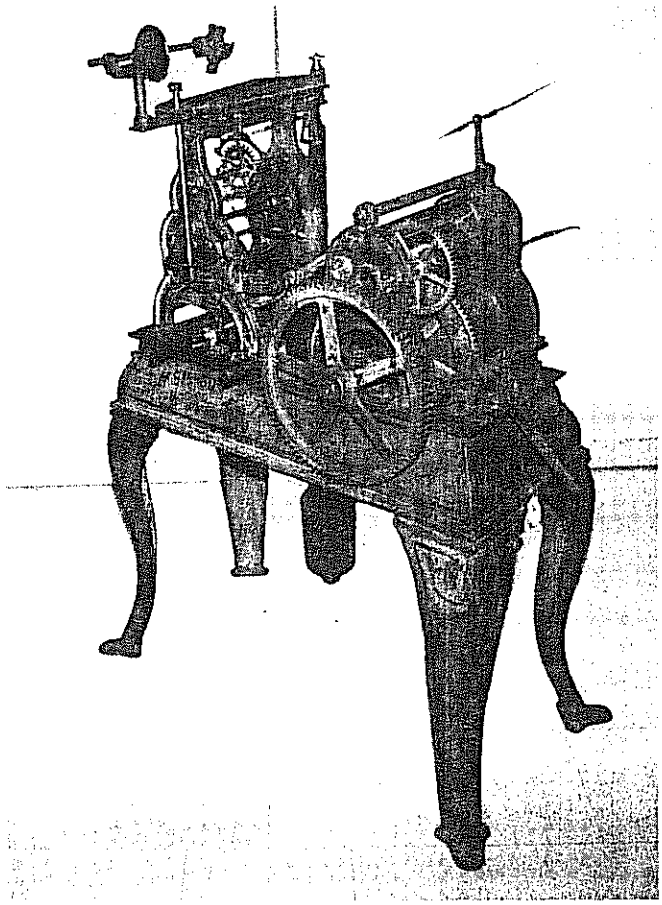


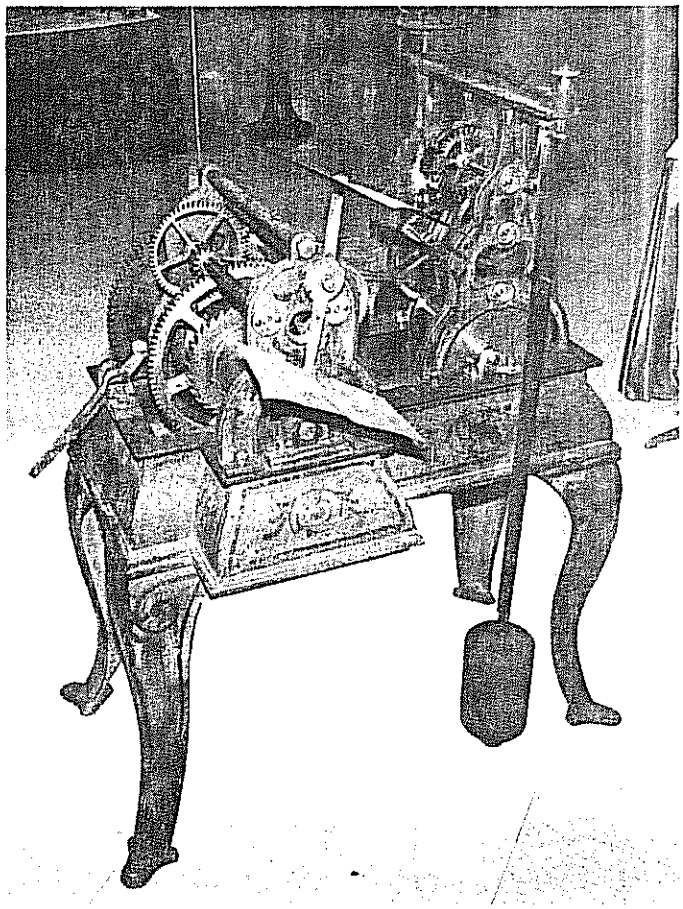
Figures 34 and 35. Two Model 3C clocks, both running handwound in Maine, but installed 15 years apart. Left, the Damariscotta clock dates from 1885, is green with painted black trim. Right, the Cornish clock dates from about 1900, is also green but has a maker's nameplate at C. Both clocks have the distinctive outriders at A and redesigned strike levers at B.

Model 4, 1880–1916

Model 4 is a major change from Model 3, although both were offered concurrently. Most notable is the replacing of the crane-striker with the Grimthorpe cam-tooth strike. It requires changes in the strike control levers, and the addition of a 3-wheel strike train ending in a large fan. The pendulum is shortened to a 1-second beat, its bob hanging above floor level. Both time and strike plates are designed for a matching, more compact look. The gear spoking is machined flush with the wheel rims, rather

Figure 36. Model 4 front and back views, from Wellesley, MA, 1885. The green clock with black trim is 50" high and 35" wide by 18" deep at the flatbed frame.





COLLECTION: DAVID HOCKSTRASSER (2)

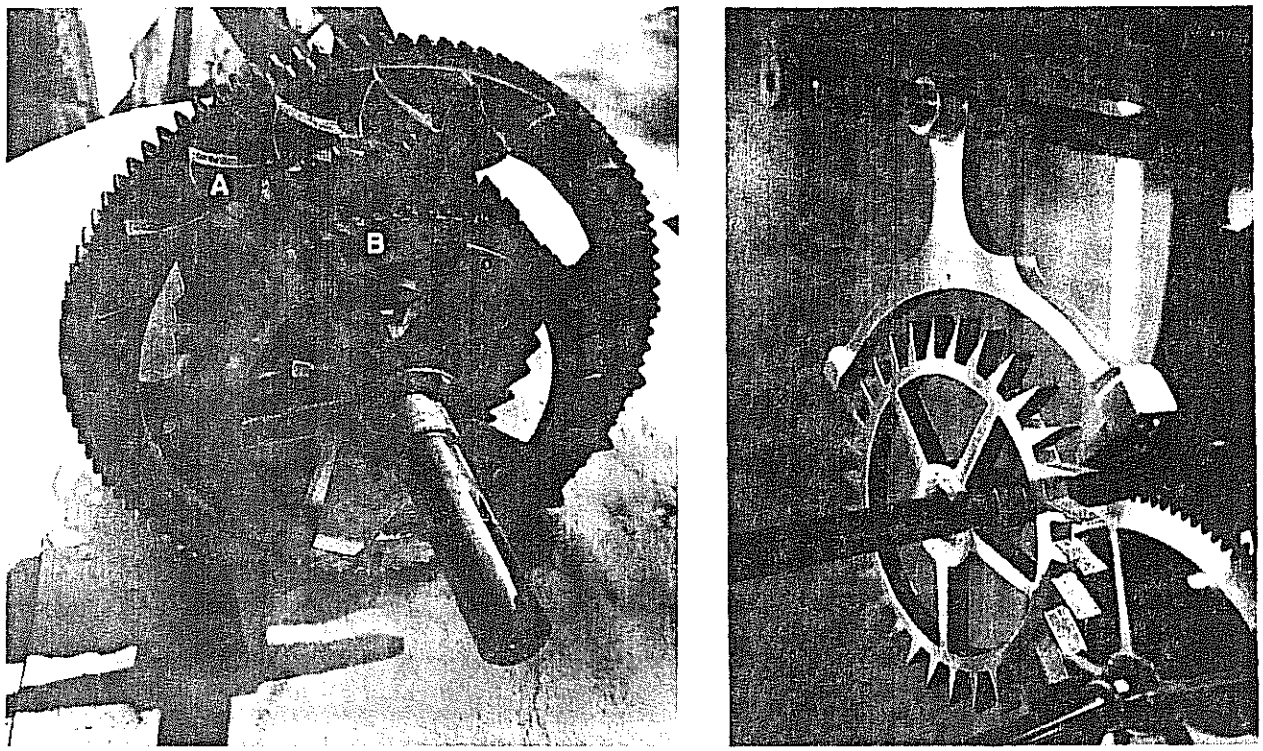


Figure 37. At left, a smaller escapement with pointed teeth is used on all Model 4 clocks. At right, the earliest Model 4's used the Grimthorpe cam-tooth strike wheel (A) with the crane-striker countwheel (B).

than left rounded as cast and painted. The only significant change in the time train is a smaller escapement with pointed teeth (see Figure 12).

Several Model 4 clocks, dating from about 1882 to 1894, retain use of the old countwheel with the Grimthorpe strike. However, as early as 1880, other Model 4's replaced the countwheel with a stirrup-shaped rack with a straight tail bearing on a snail. By 1904, an awkward looking V-shaped rack-and-snail appears, along with a commercial two-handed pilot dial (Figure 40). Of the four clocks of this type that have survived, three have been electrified. As the sun sets on this last Stevens model, the only feature remaining from the early Turret & Marine Clock Company is the hand-setting clutch on the #2 time wheel shaft.

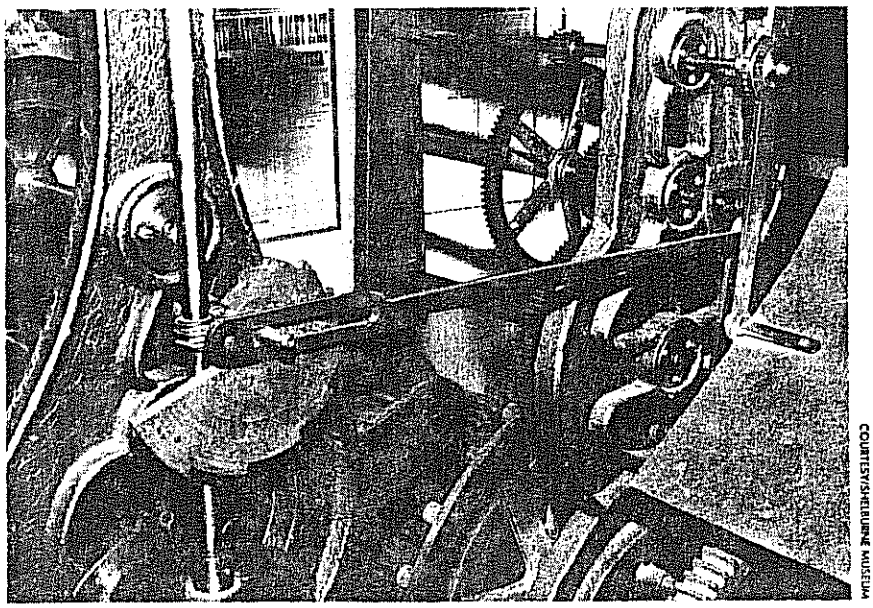


Figure 38. This 1880 transition Model 4 from Montpelier, VT, is the largest Stevens known; it measures 61" high, with a 46" wide by 25½" deep flatbed frame.

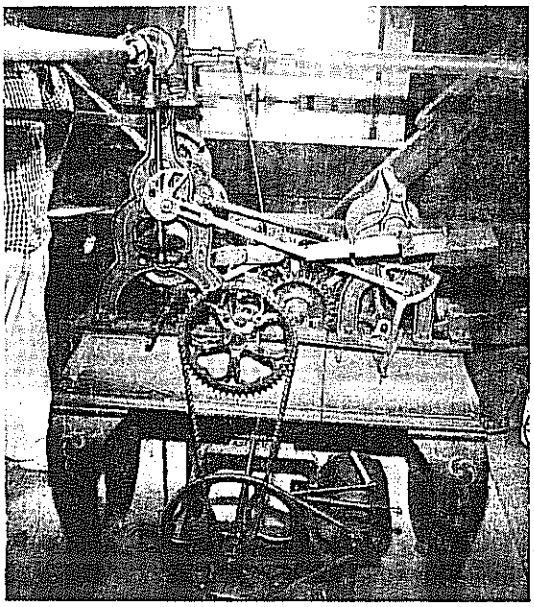


Figure 39. This smaller version Model 4 measures 50" high by 34" wide by 20" deep. Installed in Groveland, MA, in 1883 and now modified with an improvised electric rewind system, the clock has the distinction of striking on the oldest Paul Revere bell in continuous use, #11, dated 1795.

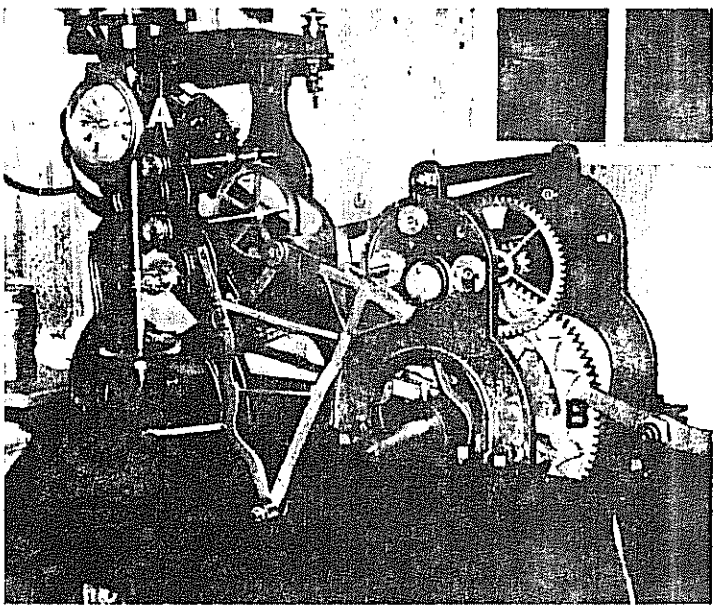


Figure 40, right. The final Model 4 rack-and-snail arrangement. Note pilot dial at A and Grimthorpe strike at B. Installed about 1904 at Jaffry Center, NH, the clock has been electrified, and both escape wheel and fan removed.

About the Author

Author Frederick Shelley is a graduate of Cornell University, has six children and eight grandchildren. He spent 35 years as a freelance commercial artist/writer, mostly for aerospace, communications and computers.

Mr. Shelley is well-known as the author of NAWCC Supplement #16, "Aaron Dodd Crane, An American Original." Recently, he has moved from collecting clocks to collecting information, specializing in pre-1870 tower clocks and their makers, which he refers to as "clockwork archeology." He is a Fellow of the NAWCC, a regular BULLETIN contributor, and the 1994 recipient of the James W. Gibbs Literary Award for outstanding literary contributions in horology.

Acknowledgements

This article is based on such original sources as city directories, selectmen, financial reports, county probate records, catalogs, newspaper accounts and obituaries. The Stevens clocks themselves were a primary source. A debt is owed to the hundreds of people who took time to help locate and provide access to clocks, and to document their history. In a number of instances, the interest shown in a town clock has helped to bring about its restoration. Special thanks are due to Lloyd Larish of Faribault, Minnesota, who inspired the Stevens search and taught what to look for. Thanks also to Shirley and Harold Boothroyd, Gary Carino, Alton DuBois, Kathy Everett, William Klauer, Carroll Morse and David Proper, who helped along the way.