

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

UNITED STATES OF AMERICA)

vs.)

THOMAS A. SHAY and)
ALFRED W. TRENKLER)

Criminal No.:
92-10369-Z

AFFIDAVIT OF DENNY L. KLINE IN SUPPORT OF
MOTION TO EXCLUDE ALL EVIDENCE
RELATING TO 1986 DEVICE

I, Denny L. Kline, on my oath, do hereby depose and say the following:

1. On or about February 5, 1993, I was retained by Terry Philip Segal, Esq., counsel for Alfred Trenkler, to conduct a forensic analysis of the evidence related to the bombing incident in the above-captioned case.

A. SCOPE OF EXAMINATION.

2. My analysis consisted of a personal examination of the items recovered at the scene of the bombing and materials recovered incidental to the follow up investigation by the Bureau of Alcohol, Tobacco and Firearms ("ATF"). I also reviewed the following reports:

- a) ATF Laboratory reports;
- b) ATF Explosives Technology Branch report;
- c) Commonwealth of Massachusetts, Department of Public Safety report regarding a 1986 bombing incident in Quincy, Massachusetts;
- d) Statements made by explosives enforcement expert, Larry McCune, for the second affidavit of Jeffrey S. Kerr, Special Agent, dated March 2, 1992;

- e) Investigative reports from ATF, the Boston Police Department and the Quincy Police Department; and
- f) A 1-page sheet of paper purported to be contemporaneous handwritten notes by Officer William Lanegran of the Quincy Police Department of a conversation with Alfred Trenkler regarding the 1986 device.

B. QUALIFICATIONS.

3) A summary of my background and qualifications to conduct this forensic analysis consists of the following:

a) I have Bachelor of Science degree from Georgia Southern College and a Masters of Science degree in Forensic Science from George Washington University.

b) From 1970 to 1990 I was employed by the Federal Bureau of Investigation ("FBI") as a Special Agent (1970-1976), a Supervisory Special Agent in the FBI Laboratory, Explosives Unit (1976-1988), and as a Faculty Member and Program Manager at the Forensic Science Research and Training Center (1988-1990).

c) From 1990 to 1992, I was employed by Cronin/Cay Group, Inc., as a Course Director of the Post-Blast and Arson Investigation Course for the U.S. State Department's Anti-Terrorist Assistance Program (ATAP).

d) From 1990 to present, I have been self-employed at ETA Consultants, Inc., which is a consulting company specializing in explosives training and analysis of bombing incidents and crime scene investigations. My clients include government agencies (foreign and domestic), insurance companies, law enforcement, and legal counsel in both criminal and civil litigation.

4) I have been involved in investigating numerous bombing incidents during my career which have included assignments in the United States and eleven (11) foreign countries.

5) Some of the more notable investigations that I have been involved in include the following explosions: Pan Am Flight 103 over Lockerbie, Scotland; Harvey's Casino, Lake Tahoe, Nevada; Pan Am Flight 830, Honolulu, Hawaii; and TWA Flight 840, Athens, Greece. Most recently, I testified for the prosecution in April, 1993 in Athens, Greece at the trial of Mohammed Rashid, a Palestinian international terrorist bomber. This testimony involved the inter-comparison of bombing incidents and identification of the bomb maker's signature.

6) I have also supervised forensic examinations and coordinated results involving many terrorist organizations such as FALN, a Puerto Rican terrorist organization responsible for over 150 bombings; Omega 7, a Cuban anti-Castro terrorist organization responsible for 57 bombings; ARU, a domestic terrorist group which has claimed credit for bombings at the U.S. Capitol, War College, and at the Navy Yard in Washington, D.C.; and 15 May, a Palestinian terrorist group headquartered in Baghdad, Iraq which has been responsible for over 20 bombing incidents. In all of these series cases, and others that I have examined during my tenure at the FBI Laboratory, my task was to identify bomb components recovered from the scene of a bombing or attempted bombing, identify the methods of assembly of said components, and inter-compare them for identification to previously examined bombs.

7) I have also participated in security planning and bomb incident response for the 1984 Olympics at Los Angeles; 1987 Pan American Games at Indianapolis; and the 1988 Olympics at Seoul, Korea.

8) My certifications include:

- a) FBI Laboratory Certified Hazardous Devices and Explosives Specialist;
- b) Certified Bomb Technician, Hazardous Devices School (HDS), Huntsville, Alabama; and
- c) Certified Police Instructor in Explosives, Forensic Science and Laboratory Matters, Crime Scene Management, Terrorism, and Bombing Crime Scenes.

9) As a member of the faculty at the FBI Academy, I was also an Adjunct Faculty Member at the University of Virginia. I have also served as a guest lecturer on specialized subjects to the Central Intelligence Agency (CIA), Defense Intelligence Agency (DIA), Department of Army, Department of Energy, and Department of State.

10) I have testified in federal and state courts for the prosecution on numerous occasions during my 20 years as a member all the F.B.I., having been qualified as a hazardous devices and explosives expert.

11) Finally, while I was a Supervisory Special Agent at the FBI Laboratory Explosives Unit, I authored and revised FBI manuals and bulletins regarding forensic investigations of explosives, bomb devices and airplane bombings. I also designed and coordinated the FBI Bombing Crime Scene School which provides training to other law enforcement organizations.

C. OPINIONS OF DENNY L. KLINE REGARDING

SIMILARITIES OF TWO DEVICES.

12) Based upon the evidence that I have personally inspected, and a review of the information presented in the various reports and affidavits referenced above, it is my opinion that the 1986 device (hereinafter "86' device") and the 1991 device (hereinafter "91' device") are not similar in many significant respects. Moreover, it is my opinion that the similarities that do exist are generic similarities which provide little, if any, assistance in determining the identity of the individual who made the 91' device. Finally, it is my opinion that a comparison of the design, construction, and circumstances of the 86' device and the 91' device, indicate that a different person made each device.

13) The basis for my conclusion that the maker of the 86' device and the 91' device were not the same person derives from my years of training and experience in bomb investigations and the forensic analysis of improvised explosive devices. Although it is true that the components recovered and identified by ATF from the 91' device are consistent with a remote radio control improvised explosive device and the components recovered and identified by the Commonwealth of Massachusetts Department of Public Safety from the 86' device are also consistent with a remote radio control improvised explosive device, this similarity is generic in nature and without further analysis of components and methods of assembly is insufficient for purposes of identification. The fact that both devices were affixed to vehicles by a magnet or magnets is also not

sufficient. This similarity is common for any remote radio control device which is affixed to a metal object like a car. These generic similarities provide little insight into identifying the maker of the 91' device.

14) It is a well-known premise in the field of analysis and reconstruction of explosive devices that once an individual builds an improvised bomb, he or she will repeat specific and unique aspects of the first bomb if he or she builds a second bomb. Basically, the bomb maker individualizes his or her bomb construction by the types of components employed, alterations made, and the means of assembling the device. Thus, to determine whether an individual has constructed another device it is necessary to identify specific, singularly unique, or uncharacteristic similarities in the design, components, assembly, construction, and other circumstances which appear to be individualized by the bomb maker. These singularly unique alterations or methods in constructing a device are commonly referred to as the bomber's signature.

15) Every explosive device consists of at least three components. These components are: 1) a main charge; 2) an initiator or detonator; and 3) a fuzing/firing system. The fuzing system provides the power source and the firing mechanism. In both the 86' device and the 91' device, the fuzing systems utilized radio control components.

16) However, a radio control fuzing system is insufficient or too generic by itself to identify the bomber's signature. Rather,

a complete forensic comparative analysis of the two devices requires an item by item examination of the design, components, assembly, construction, and other circumstances of each device. In determining the singularly unique similarities, each of the above-mentioned factors are not equal. In this case, although some of the circumstances of the two explosions are similar, a scientific comparative analysis of the design, means of assembly and construction of the 86' device and the 91' device indicates that there are no singularly unique similarities between the devices.

17) Comparing the 86' device to the 91' device by component, consider first the examination of the main charge. The main charge in the 86' device was a artillery flash simulator. This simulator is a low-explosive used to produce a loud noise and smoke to simulate the sound of military ordnance during training. The artillery flash simulator is a low-explosive that can be associated with a very large firecracker. The 91' device, according to ATF analysis, consisted of two (2) to four (4) sticks of dynamite, which is a high explosive which can produce serious property damage, cause serious personal injury or death.

18) The artillery flash simulator, if identified as an M-21, (as the government asserts in a footnote at p.9 of their memorandum) is a low explosive pyrotechnic device which is electrically initiated by means of a built in quick match. This differs from the 91' device which had a high explosive main charge and which required the use of detonators. In fact, the 91' device

utilized two (2) electric blasting caps, which were identified by ATF as Austin Rockstar #6 delay.

19) According to the Quincy Police Department report (Exhibit A attached hereto) of the 86' device, the 86' device appeared to be a device which was designed to be initiated by non-electric means, i.e., mechanically or manually removing a pull wire fuse igniter. At page 3 of the Quincy Police Department report of the 86' incident it states:

Mr. Voit (sic) (the state bomb technician) took all the remains of the bomb with him. Mr. Voit states that the explosion was a artillery simulator, often used by the National Guard, he does not know what the batteries and other articles were used for since the simulator has a pin like a grenade, no need for wires or batteries has a 5-10 second delay once pulled.

20) I have been informed that the remains of the 86' device were not preserved and are not available for examination, and Leo Voght, the state bomb technician, referred to in the 86' Quincy Police report (Exhibit A), is deceased. Due to the unavailability of the physical evidence from the 86' device and the apparent discrepancy between the descriptions of that device, a positive identification of the 86' device is difficult.

21) The fuzing system in the 86' device was an inexpensive Tyco radio control system that was removed from a radio control car and modified by using a circuit board with a relay and power switch. The system removed from the radio control car was modified by incorporating a circuit board, relay, power switch, safe arming toggle switch. The 91' device contained a complete and more-expensive Futaba radio control system which included a receiver,

battery pack, servo, horn, slide power switch, and antenna wire. A toggle switch was added to serve as a trigger for the 91' device. More importantly, the Futaba system in the 91' device was functional as designed.

22) In addition to the three common design components mentioned above, the manner in which the 86' and 91' devices were designed and assembled was also very different. In fact, a comparison of the specific components, and manner of assembly of both devices provides no singularly unique similarities.

23) In the 91' device, according to ATF's Explosives Technology Branch, the receiver activated a servo motor which rotated the servo motor horn which turned the toggle switch to the on position which fired the system. By turning the toggle switch on, electrical current was sent to the 2 blasting caps inserted into the dynamite, and thus caused an explosion. This design presented by ATF for the 91' device is logical and would have functioned as designed.

24) Additionally, a comparison of these two designs presents singularly unique differences in both the manner, and method of the toggle switch's use, and the type of toggle switch used. Specifically, the toggle switch in the 86' device was simply used to allow the functioning of the remote control system. In the 91' device the toggle switch was used to fire the bomb. In other words, in the 86' device the toggle switch was used as a safety or backup switch to arm the power switch for the fuzing system. It was used merely to test the device and to protect its maker. The

86' device also required the user to manually turn the toggle switch on or off, and turning the toggle switch on or off did not fire the system. In addition, the type of toggle switch employed in the 86' device was identified as a double throw toggle switch meaning that it could be pushed into one of three positions - left, center, or right.

25) The toggle switch in the 91' device was used as a trigger to fire the device. In addition, the toggle switch was remotely turned on by the movement of the servo motor horn. Moreover, the type of toggle switch used in the 91' device was identified as a single throw toggle switch which means that it had only two positions - on and off. In summary, the manner in which the toggle switch was used, the method used to turn it on, and the type of toggle switch used were all different in the two devices. In my opinion, these alterations and/or variations in the manner, and method in which the toggle switch was used, and the type of toggle switch used, significantly diminish the signature value of the 86' device.

26) Second, another singularly unique dissimilarity in these devices is the manner in which the components were assembled and connected. This analysis includes comparing the type of wires which were used, and the method used to make the wire connections. A comparison of the wiring in the 86' device and 91' device, indicates that the wiring was different in material respects. In the 86' device the wires utilized were in essence wire scraps consisting of 22 and 26 gauge wire. Conversely, in the 91' device,

all the wires identified by ATF, with the exception of one large red insulated multi-strand wire, were wires which were a part of the Futaba remote radio control system.

27) More importantly, however, is the manner in which the wires were connected within the respective devices. In the 86' device, the wires connections were twisted, soldered and taped. However, in the 91' device, the wires connections were twisted and taped, but not soldered. These are singularly unique methods of assembly which individual bomb makers are very likely to repeat. In addition, in the 86' device, wires were even soldered to the batteries contained within the system to make the battery connections. In the 91' device, solder was not used. Rather, in the 91' device battery snap connectors were used. Thus, there are identifiable and material differences in the type of wire used, the manner in which the wires were connected together, and the manner in which the batteries were connected to the electrical circuit in these two devices.

28) Additional dissimilarities of singular significance between the 86' device and the 91' device include the fact that 86' device was not concealed in a container. Conversely, the 91' device was concealed within a plywood box, which was nailed, glued, and painted black. Similarly, no adhesives were used in the 86' device; however, in the 91' device adhesives (i.e., crazy glue) were used extensively. In addition, the 86' device contained one (1) circular speaker magnet, whereas the 91' device used twelve (12) button magnets, and either one (1) or two (2) ring magnets.

However, no identifiable speaker magnets were used. Moreover, the number of magnets used is also significant because in the 86' device only one (1) large magnet was used to attach the device to the vehicle involved, whereas in the 91' device either thirteen (13) or fourteen (14) magnets consisting of two (2) different sizes were used to attach the device to the vehicle involved. Finally, in the 86' device two types of tape were used in constructing the device - black plastic tape and silver duct tape. However, in the 91' device, two (2) types of black plastic tape were used, silver duct tape was used, and white plastic tape was used to secure the connecting detonator wires.

29) Thus, based on the above numerous and significant dissimilarities between the design, components, method of assembly, and construction of the subject devices, it is clear that there is a paucity of identifiable generic similarities and a preponderance of singularly unique differences which taken together strongly suggest that the maker of the 86' device and the maker of the 91' device were not the same person.

30) In addition, the use of remote control devices is not considered rare in the United States. According to the 1991 ATF Explosives Incidents Report, during the past five (5) years forty (40) remote control devices were employed in pipe bombs alone. In fact, in April, 1980, I was involved in the examination of a radio control bomb that utilized Futaba components, a toggle switch as its trigger, a high explosive main charge, and a detonator. The components were mounted on a board and secured with duct tape,

black plastic tape and adhesive, and utilized two (2) ring magnets to attach the device to the underside of a vehicle. I have also had the occasion to personally examine and am aware of other cases involving Futaba remote radio control devices.

31) Since drafting the above 30 paragraphs, I have been provided with the prosecution's June 10th Motion in Limine to admit evidence of the 1986 device.

32) In the remaining portion of this affidavit I specifically respond to some of the key statements contained in the government's June 10th motion and memorandum of law.

33) In its June 10th motion and memorandum of law, the prosecution characterizes the 1986 and 1991 bombings as "substantially similar, "remarkably similar", "distinctive modus operandi", "strikingly similar", "pronounced signature quality."

34) In my opinion, the use of these adjectives misrepresents the actual comparison similarities between the two devices.

35) In my opinion, the prosecution has drawn from general/generic similarities between the two bombings only, and has not identified the specific type and manufacturer of components, has not identified any of the unique methods of assembly of the components, and has not identified the singularly unique methods of assembling the device--which are essential in offering an opinion that there is a "pronounced signature quality."

36) In my opinion, a detailed comparison of the components, construction and method of assembly between the two devices reflects more dissimilarities than similarities.

37) The prosecution's attempt in this case to make a positive identification that the two devices were built by the same person from the use of generic components is analogous to making a fingerprint identification of a person suspected of a crime by stating that the suspect had a loop on the right thumb, and a tented arch of the left forefinger, and both types were found at the crime scene. Loops and tented arches are generic only. A positive fingerprint identification requires that each fingerprint impression have unique ridge characteristics of similar shapes which occupy the same relative position in the patterns. Generally, multiple characteristics are used for an identification.

38) In bomb investigations, post blast identification of bomb components, reconstruction and inter comparison with previously encountered bomb devices are fundamental to a bomb investigation.

39) Most important in the analysis is the identification of singularly unique features of the bomb, i.e., types of components, specific alterations to those components, and individual methods of assembling the device.

40) Forensic laboratories have documented that a bomb maker will individualize his method of making a bomb, and will repeat the procedure.

41) In short, the bomb maker will leave a "signature", some type of glaring identification.

42) A classic example of "signature" identification is found in a series of 19 bombings occurring along the East Coast of the

United States in the early 80's. Four separate terrorist groups claimed responsibility for these bombings.

43) Laboratory analysis of the recovered bomb components revealed, however, there were only two bomb makers.

44) Although the groups used a generic type of pocket watch identified as a Westclox pocket watch for a time delay, it was noted that the watches were altered in a singularly unique manner.

45) Common to these groups of terrorists were the use of Westclox pocket watches, black plastic tape, electric detonators, dynamite, concealment containers, and all the bombs were deployed against similar targets. All of these characteristics are similarities, but by themselves, in the bombing case in which I participated and which was tried in Springfield, MA, did not permit the "signature" identification of the bomb maker, because they are generic components.

46) However, one terrorist group, the United Freedom Front, always used a small brass wood screw for a contact in the watch, and used alligator clips to make the electrical connections. The second group, which claimed responsibility for the bombings under three different names, (ARU, RGR and RFG), placed a scratch mark on the timing regulator inside the watch, and used miniature pin plugs and sockets for electrical connections. In the examination of these bombing incidents claimed by these two groups, other unique characteristics were present which reinforce the signature identification. These singularly unique features are classic examples required to establish and make the opinion that a bomber's

signature exists. The United Freedom Front was the group which committed several of its bombings in the MA area and members of that organization were tried before Hon. William Young in the Springfield case I refer to in paragraph 45..

47) In sum, in order for a forensic laboratory or bomb specialist to suggest the same individual made two separate bombs, in the absence of positive identifications, such as fingerprints, fracture matches, etc., there must be those singularly unique(glaring) features that reoccur in each bomb.

48) In my opinion, in comparing the '86 and '91 devices in this case, a forensic specialist will clearly recognize that all of the similarities are generic, and those areas of unique identification, such as the type of components, construction, and methods of assembly display a preponderance of dissimilarities, and accordingly do not support a "pronounced signature quality."

49) At page 2 of its memorandum of law in support of its motion, the prosecution states it is prepared to prove at trial Trenkler built a bomb in 1986 "containing substantially similar electronic components to those present in the 1991 device." Based upon the foregoing, it is clear identification and comparison of the electronic components would show they are substantially different, i.e., type, brand, manufacturer, arrangement and assembly.

50) At page 2 of its memorandum of law, the prosecution states, "Trenkler used a distinctive modus operandi in 1986, similar to that involved here", i.e., going with someone else to

buy his components, attaching device to vehicle with speaker magnet.

51) Although the 1986 device used a speaker magnet, the 1991 device used 12 button magnets and one circular magnet not positively identified as originating from a speaker. Additionally, based upon the material supplied to me, I am unaware of any evidence that Mr. Trenkler was with Thomas Shay when he is alleged to have purchased a toggle switch from Radio Shack on October 18, 1993.

52) At page 2 of its memorandum, the prosecution refers to a computer analysis of 14,000 bombings or attempted bombings over a 12 year period, to indicate only the 86 and 91 bombings have certain characteristics, i.e., remote control, toggle switch, cars and trucks, affixed by circular magnet to undercarriage of vehicle, duct tape, and soldering wires.

53) Based upon my personal knowledge, I am aware that not all bombings were reported to BATF from 1979-1991. I personally examined two devices submitted to the F.B.I. laboratory for analysis during the period 1979-1991, which obviously were not reported to BATF for inclusion into their data system. These two devices, which I examined in the early 1980's, to the best of my recollection and without complete review of the reports, included: remote control, toggle switch, cars and trucks, placed under undercarriage of vehicle with circular magnets, duct tape, and soldering of wires. One of these devices even utilized two detonators like the 91 device also utilized two detonators.

54) One of the key words, mentioned at page 2 of the prosecution's memorandum of law, and involving the computer-based analysis, is "soldering wires".

55) Solder was used to connect the wires in the 86 device. Examination of the 91 bomb evidence by me at ATF in Boston did not reveal any wire ends twisted and soldered. Additionally, there is no mention of soldered wires in the BATF laboratory report prepared by ATF chemist, Cynthia Wallace. It is noted that two leg wires, examined by me at Boston, were connected by twisting and secured only with white plastic tape. Solder was not used to secure these wire connections. Solder was, however, present on one of the remaining contacts of the toggle switch.

56) At page 3 of its memorandum of law, it states, " The source of the explosion was determined to be an improvised device which among other things, featured a radio signal receiver powered by four(4) "AA" batteries."

57) BATF identified the presence of a Futaba power pack, which contains (4) "AA" batteries. This item is assembled by Futaba, and is part of the remote control system, and is not identifiable with the materials (which included a "AA" battery holder), allegedly purchased by Shay on October 18, 1991 at the Radio Shack.

58) On pages 4-5 of the memorandum, the prosecutor states that a toggle switch was purchased by Shay on October 18, 1991, at the Radio Shack, and a toggle switch was found in the 1991 device which is consistent with the same type of toggle switch allegedly

purchased by Shay. It should be noted, however, this type of toggle switch is not unique, is abundantly available and has many practical, legitimate uses (i.e., activate electronic motors, and basic electric circuits) where a simple switch is needed.

59) At page 5 of the government's memorandum of law, it states, "This device(the 1991 bomb) was affixed to the undercarriage of a motor vehicle belonging to Shay Jr's father...by means of two types of magnets, including a circular magnet consistent with one taken from a stereo speaker."

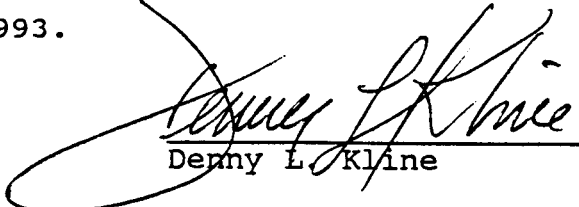
60) Clearly, the 1986 device utilized a magnet removed from a speaker. The 1991 device, however, used at least 13 magnets, only one of which was described as a circular donut magnet. This circular magnet was not identified as coming from a speaker, but is like those used in speaker magnets, base of antennas and also small motors. Accordingly, the source of the circular magnet found in the 91 device is unknown. Additionally, the 91 circular magnet was a different size than the 86 device speaker magnet.

61) At page 5-6 of the memorandum, it states, " The 1991 device was designed to receive a radio signal from a remote control transmitting unit by means of an antenna consisting of strands of wire."

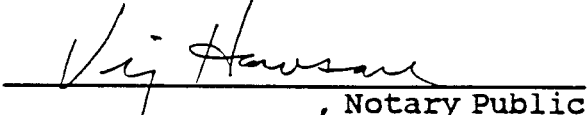
62) The 1991 device used a white insulated wire affixed to the receiver by the manufacturer. Said wire served as the antenna. The 1986 device used two wires connected together as the antenna which was assembled by Alfred Trenkler.

63) In summary, in my opinion, even though the devices compared have some common similarities such as the use of a remote radio control system, a toggle switch, and the use of magnets, these generic similarities provide little, if any, assistance in determining a common scheme or plan with respect to both devices, or more importantly, the identity or signature of the maker of the 91' device. Conversely, when one identifies the overwhelming preponderance of singularly unique dissimilarities between the two devices such as the main charge, the means of initiation, the wire connections, the battery connections, the types of toggle switches, the method and manner in which the toggle switches were used, the use of a container, and the type of radio control components used, one must conclude that a comparison of these devices provides no signature evidence which would identify the maker of the 91' device and in addition, provides no evidence of a common plan or scheme.

Signed, before me, under the pains and penalties, of perjury this 18th day of June, 1993.


Denny L. Kline

SWORN AND SUBSCRIBED BEFORE ME ON THIS 18th DAY OF JUNE, 1993.


_____, Notary Public
My commission expires: 6/30/96