A HISTORY AND ANALYSIS OF SECTION 1498 OF TITLE 28 OF THE UNITED STATES CODE DEALING WITH UNLICENSED USE OF PATENTS BY THE UNITED STATES GOVERNMENT AND ITS EFFECT ON PROCUREMENT

William Brownell Humphrey

Naval Postgraduate School
Monterey, California

March 1974

DISTRIBUTED BY:

National Technical Information Service
U. S. DEPARTMENT OF COMMERCE
5285 Port Royal Road, Springfield Va. 22151
A History and Analysis of Section 1498 of Title 28
of the United States Code
Dealing with Unlicensed Use of Patents by the United States Government
and Its Effect on Procurement

by

William Brownell Humphrey
Lieutenant Commander, United States Navy
B.S., United States Naval Academy, 1961
B.S.E.E., Naval Postgraduate School, 1968

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
March 1974

Author
William Brownell Humphrey

Approved by:
Thesis Advisor
Edward T. March

Second Reader
Pat M. Kelly

Chairman, Department of Operations Research
and Administrative Sciences
C. W. Vetter

Academic Dean
A History and Analysis of Section 1498 of Title 28 of the United States Code Dealing with Unlicensed Use of Patents by the United States Government and Its Effect on Procurement

William Brownell Humphrey

Naval Postgraduate School
Monterey, California 93940

March 1974

42

Approved for public release; distribution unlimited.

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This thesis traces the development of Section 1498 of Title 28 of the United States Code. This section deals with the unlicensed use of patents by the United States Government. The effect of this statute and its interpretations by the Comptroller General of the United States in Government procurement situations is examined. The effects of these interpretations and their impact on the patent holder, licensee and unlicensed contractor are examined. (cont.)
Research was based heavily on the decisions of the Federal courts and the Comptroller General. Additional research was accumulated from published sources, both legally and commercially oriented.

Finally, recommendations are provided which could improve the equity and reduce the costs involved with the unauthorized use of patents.
# TABLE OF CONTENTS

I. INTRODUCTION ........................................................................ 4  
   A. THE SITUATION .............................................................. 4  
   B. PURPOSE ........................................................................ 5  
   C. METHODOLOGY ............................................................... 6  

II. BACKGROUND ......................................................................... 7  
   A. GENERAL ......................................................................... 7  
   B. LEGISLATIVE DEVELOPMENT ........................................... 8  

III. STATEMENT OF THE PROBLEM ........................................... 13  
   A. PRIOR TO 1958 .............................................................. 14  
   B. POST 1958 ...................................................................... 17  
   C. THE DILEMMA OF THE PATENT HOLDER ...................... 20  
   D. ASPR AND NASA AUTHORIZATION AND CONSENT ......... 24  
   E. LEGISLATIVE EFFORTS ..................................................... 29  
      1. The Williams Bill, S. 1047 ............................................ 29  
      2. The Morris Bill, H. R. 10022 ....................................... 31  
   F. NASA'S "INSTANT LICENSE" ........................................ 32  

IV. CONCLUSIONS AND RECOMMENDATIONS .......................... 35  
   A. CONCLUSIONS .............................................................. 35  
   B. RECOMMENDATIONS ..................................................... 36  

APPENDIX A. Selected Decisions of the Comptroller General, Post October 1958 ........................................ 37  

BIBLIOGRAPHY ........................................................................ 39  

INITIAL DISTRIBUTION LIST ................................................... 41  

FORM DD 1473 ........................................................................ 42
I. INTRODUCTION

A. THE SITUATION

Art. 1, Sec. 8. The Congress shall have the power . . . To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

The Constitution of the United States

We believe that the statute [28 U.S.C. 1498] is not consistent with any duty on the part of a contracting agency of the Government to protect the interests of patentees or licensees with respect to articles which it proposes to purchase . . .

The Comptroller General
(38 Decs. Comp. Gen 276 (1958))

There is a pressing need for this legislation, due to certain procurement policies which are presently being followed by Federal Government agencies, particularly the Department of Defense. Under these policies American patents are being knowingly and deliberately infringed for whatever reason the particular procuring agency deems appropriate, which not only violates Congressional intent, but adversely affects the economy of our country both domestically and internationally.

Remarks by Senator Williams (D - New Jersey), introducing Senate Bill S. 731, on the floor of the Senate, January 30, 1967

The application of Section 1498 of Title 28 of the United States Code in Government contracts has provided a blanket of security and at the same time been the vehicle for litigation against the United States. The first two paragraphs of 28 U.S.C. 1498 state, in effect, that when an invention is used in the execution of a government contract, without the license of the owner or other legal rights, but with the authorization
or consent of the Government, the patent holder may seek relief only against the Government. 1

It is important to note the phrase "authorization or consent" which indicates that either action, authorization or consent; may be grounds for action under 28 U.S.C. 1498. Here we have a situation whereby a contractor may with impunity infringe the patent of another and yet not be libel in a court of law. Of course, there are other factors involved such as actual or implied authorization or consent, indemnification provisions whereby the ultimate liability for infringement may rest with the contractor, and the type of contract involved. The details of these and other factors will be addressed later.

B. PURPOSE

The purpose of this thesis is to show that existing procurement regulations and decisions actually contribute to the unauthorized use of patents. A result of unauthorized use of patents is that the patent holder may attempt to gain some form of compensation from the agency involved. Actions by the patent holder are costly and time consuming for all involved.

Recommendations will be set forth which could materially aid in the reduction of "unauthorized use" protests and claims, and would restore some degree of exclusivity to the patent holder.

---

1 28 U.S.C. 1498 (a): "Whenever an invention described in and covered by a patent of the United States is used or manufactured by or for the United States without license of the owner thereof or lawful right to use or manufacture the same, the owner's remedy shall be by action against the United States in the Court of Claims for the recovery of his reasonable and entire compensation for such use and manufacture.

For the purpose of this section, the use of manufacture of an invention described in and covered by a patent of the United States by a contractor, subcontractor, or any person, firm, or corporation for the Government and with the authorization or consent of the Government, shall be construed as use of manufacture for the United States . . ."
C. METHODOLOGY

The preponderance of the background material for this thesis was obtained from printed works, both published and unpublished. Extensive use was made of the Legal Information Thru Electronics (LITE) information retrieval system, in Denver, Colorado.

The thesis is constructed along historical lines, tracing the background and development of 28 U.S.C. 1498 (hereinafter referred to as simply "1498"). A discussion of major interpretations of authorization and consent, specific clauses, and finally recommendations for improvement are presented. The subject of "authorization and consent" is only one small but important facet of the broad and complex areas of patents.
II. BACKGROUND

A. GENERAL

Patent laws are not set forth in Title 35 of the United States Code. 35 U.S.C. 261 confers upon a patent the attributes of personal property and therefore, the patent may be the subject of litigation. However, the granting of a patent does not confer upon its owner the exclusive right to use the invention in a specific manner, but to exclude others from so doing without permission.

The "others" referred to does not mean the United States Government. Suits against the United States, arising out of contracts, are permitted under the provisions of 28 U.S.C. 1491 (1964), originally passed in 1887 as the Tucker Act. Therefore, it might be reasonably asked what purpose is served by 1498 previously mentioned. The crucial element in litigation pursued under the provisions of the Tucker Act is whether or not a contract, implied or expressed, did in fact exist. Subsequent to the passage of the Tucker Act, a landmark case pointed the need for some form of compensatory action available to a patent holder whose patent had been infringed. In the case of Schillinger v. United States, it was determined that the use of a patent by the United States without the owner's consent was not sufficient to execute a contract. It was simply


328 U.S.C. 1491: "The Court of Claims shall have jurisdiction to render judgment upon any claim against the United States founded either upon ... or upon any expressed or implied contract with the United States, ..."
a tort. Since torts (a wrong committed against the person or property of another; separate from a contract action) were excluded under the provisions of the Tucker Act, the only recourse would have been a bill passed by Congress under Article I, Section 8 of the Constitution which authorizes the payment of debts of the United States. So in the absence of a contract, the patent owner was without a forum for redress.

By the turn of the century, there had been a rather obvious chain of events which preceded meaningful patent infringement legislation. The Government refused to be sued, so persons owning patents who sought relief were reduced to suing the individuals employed by the Government. Finally, in Carr v. United States, the responsibility for the development of appropriate legislation was laid at the doorstep of Congress. It should be noted that the Tucker Act was passed in 1887, nine years after the Carr decision, but over 20 years prior to patent infringement legislation.

B. LEGISLATIVE DEVELOPMENT

The legislative history of 1498 begins in 1910. The Act of 1910, passed by the 61st Congress, was a major step towards obtaining a forum for relief for patent holders. The thrust of the Act of 1910 was to provide that a patentee could recover "reasonable compensation"

---

4 Schillinger v. United States, 155 U.S. 163 (1894).


6 Carr v. United States, 98 U.S. 433, 437 (1878).
by a suit against the Government in the Court of Claims. There is no mention of injunctive relief as is available in civil action. 35 U.S.C. 281 provides a patent holder, "... remedy by civil action for infringement of his patent ... " The premise of injunctive relief was tested in the case of Crozier v. Krupp. Crozier was the Chief of Ordnance of the Army, and in 1911, the United States was manufacturing guns based on a patent held by Krupp. The basis for litigation was not for the recovery of damages, but simply to obtain an injunction preventing further work. The Supreme Court in the Crozier decision was very clear in stating that the United States Government by its own doing had consented to be sued under the Act of 1910, and therefore, held the high card regarding injunctive relief; there would be none! In addition, the doctrine of eminent domain was applied.

There are two important points to be born in mind at this early stage in the legislative history of infringement. First, there is no third party involved. The suit rests with the patent holder and the United States (its agent in this case) and second, was there any authorization or consent involved on the part of the Government? These two questions were in part laid to rest by subsequent cases. However, the philosophy that since the Government has the right of eminent domain, injunctive relief is meaningless, was to undergo a marked change in direction.

7 Act of June 25, 1910, c. 423, 36 Stat. 851: "That whenever an invention described in and covered by a patent of the United States shall hereafter be used by the United States without license of the owner thereof or lawful right to use the same, the owner may recover reasonable compensation for such use by suit in the Court of Claims . . . ."

8 Crozier v. Krupp, 224 U.S. 290 (1911): "This construction of the act is consistent with a denial of injunctive relief . . . . Under the circumstances now existing, that is, the acquiring by the Government under the right of eminent domain, as a result of the statute of 1910, of a license to use the patented inventions in question, there could be not possible right to award at the end of the trial, the permanent injunction to which the issue in the case was confined . . . ."
In the case of *Cramp and Sons v. Curtis Turbine Company*, the Supreme Court ruled that a contractor doing business for the Government (in this case, Cramp and Sons) was not coequal with the Government under the 1910 act. Furthermore, this case paved the way for a decision of injunctive relief. In the case of *Marconi Wireless Telegraph Company of America v. Simon*, an injunction was in fact granted. Here is a case where a contractor doing business for the government was the subject of an injunction. Notice that in this case as well as in those mentioned previously, the litigants were private parties; the United States Government was not a party.

Immediately subsequent to the Cramp decision, Acting Secretary of the Navy Franklin D. Roosevelt, on April 20, 1918, made an impassioned plea to Congress for a refinement of the Act of 1910 which would preclude an injunction against a Government contractor. With unusual swiftness, Congress passed the Act of July 1, 1918, Ch. 114, 40 Stat. 705, which became known as the Amendment of 1918. This amendment included government contractors under the protection of the Act of 1910. However well-meaning the legislators intentions may have been in the development of these statutes, there remained yet more loopholes to be plugged. An example is the Wood case.

---


11 For a reproduction of Mr. Roosevelt's letter and Congressional response, see TeSelle, *supra* note 5, at 587.
In the case of *Wood v. Atlantic Gulf and Pacific Company*, the Court stated in its opinion that the Government, when consenting to the use of a patent by an unlicensed contractor, should bear the burden of guilt. However, indiscriminate infringement should not result in such guilt. This decision has remained as a landmark decision, and in fact, this is the origin of "authorization or consent."

The final case to be discussed, which put the Act of 1910 in the interpreted form of today's 28 U.S.C. 1498 is that of *Richmond Screw Anchor Company v. United States*. Previous interpretations of the Act of 1910 had stressed that the United States could be sued in patent infringement cases, but in the Richmond case, it was decided that the only recourse for a patent holder would be a suit against the Government and not against the contractor. This provision does not apply when the contractor does in fact possess a license to use the patent and the patent owner decides to sue for some reason. In this case, the suit would be between the patent holder and the contractor.

A portion of the Royalty Adjustment Act of 1942 (Section 6) reinforced the Act of 1910 by specifically referring to "subcontractors" after some discussion had arisen as to their inclusion under the law. Finally, the

---


13 TeSelle, supra note 5, at 590: "When the government knows and obliges the contractor to use the patented article, of course the government should be willing to pay; but it will be going entirely too far to say that, because any independent contractor for his own convenience saw fit to use the patented article in doing government work, the government should pay for such use by him, when they did not know he was using it."

14 Richmond Screw Anchor Company v. United States, 275 U.S. 331 (1918).

15 TeSelle, supra note 5, at 591.

first paragraph of 1498 (a) was codified from the Act of 1910 in the Act of May 29, 1949. The Act of October 31, 1951, which is in essence Section 6 of the Royalty Adjustment Act of 1942, was inserted in the U.S. Code as paragraph 2 of 1498 (a). 17 These two actions, creating the first two paragraphs of 28 U.S.C. 1498, have not been amended since that time. In an area as dynamic as government contracting, it is difficult to perceive these provisions remaining static.

III. STATEMENT OF THE PROBLEM

When discussing interpretations of "authorization or consent," there are two distinct periods of time. One is prior to 1958 and the other, naturally, is after. The reasons for this division will become clear as the problems faced by the patent holders and the Government are developed. Going beyond the legal interpretations of infringement is the more fundamental question as to what is the purpose of "authorization or consent" legislation, and what are the motivations as perceived by the various Federal departments (both civilian and military) which govern contracting in this area.

A review of the Congressional Record\textsuperscript{18} and the Digest of Public Bills\textsuperscript{19} as of January 1974 has revealed no pending legislative proposals affecting 1498. Therefore, it may be concluded that there exists, at this time, no great desire on the part of Congress, the Public or Federal departments to modify this phase of procurement law. The recommendations of the Commission on Government Procurement and some legislative proposals which died in committee will be discussed later.

A search of the Decisions of the Comptroller General, volumes 1 - 37, revealed only nine cases dealing with patent infringement. Volumes 1 - 37 cover a time-span of thirty-five years (1922 - 1957). During this time, the legal authority for Government infringement of private patents was

\textsuperscript{18} United States of America Congressional Record, (various), United States Government Printing Office.

\textsuperscript{19} Digest of Public General Bills and Resolutions, (various sessions of Congress), Library of Congress, Washington, D. C.
in a statue-at-large (Act of July 1, 1918, 40 Stat. 705) and finally the United States Code. This was an era of depression, European power struggles and finally World War II; not the economic and social setting in which patent infringement would be an explosive topic.

A. PRIOR TO 1958

There are two particular decisions, however, which illustrate the policy of the period before 1958. In 13 Comp. Gen. 173 (1933), it was stated that:

Where it is known with certainty that the use of valid patents is required to manufacture supplies for the United States in accordance with Government specifications, bidders properly may be required to show legal right to use the patents, or the United States may directly obtain such rights for its own use or use through its contractors, . . . \(^{20}\) (emphasis added)

Two important points stand out in this decision: first, there is given every indication that the list of bidders was being restricted in favor of those holding a patent (or license) to a required invention. Second, there was definite encouragement for the Government to obtain patent rights prior to execution of the contract.

The second half of the decision states that:

. . . Where there is doubt as to the infringement of any valid patent, the interests of the United States should be protected through including in the contract a patent infringement indemnity clause . . . \(^{21}\)

Here, the Comptroller General ruled on one more aspect of patent infringement; the requirement of a patent indemnity clause whereby the contractor would be required to indemnify the Government. This was the first opinion

\(^{20}\text{A-52686, December 21, 1933, 13 Comp. Gen. 173.}\)

\(^{21}\text{Ibid.}\)
of the Comptroller General concerning infringement bonds. In a decision of the next year, the Comptroller General determined that in the event it could not be determined what patents would be involved in manufacture for the United States, "...the question may be left to the courts in a suit by those owning the patents claimed to be infringed, but the contract as well as the surety bond should be in such terms that the contractor and surety will be liable to the United States for damages which the United States may be required to pay by reason of the violation by the contractor of the patent rights of others."\(^{22}\)

The impact of these decisions on procurement, per se, is difficult to evaluate, but there are certain points to be summarized, which were to be modified in later decisions. First, bidders should possess a license or the patent in question. This decision in and of itself casts doubt upon the entire concept of eminent domain in the area of patents. Second, the contractor is placed in the position of having to shoulder the burden of liability by the inclusion of a patent indemnity clause.

There exists in both the comptroller decisions mentioned above an element of presumption. The Comptroller General was taking upon himself the decision-making function of the courts. In 13 Comp. Gen. 173, it was stated that it should not be the function of the contracting officer to determine if a patent is "valid" or simply "doubtful." The determination of patent validity and infringement is a legal function. In 14 Comp. Gen. 298, again there exists an element of evaluation of patents. If it cannot be established what the Government requires, then the contractor could not be expected to be liable.

\(^{22}\) A-57194, October 10, 1934, 14 Comp. Gen. 298.
Although patent indemnification is not the primary subject of this thesis, there are comments which must be made. First, there is no statutory requirement to include a patent indemnification clause in Government contracts. Indemnification is the process by which the contractor is required to repay the Government for claims which are paid based on patent infringement. Certainly the Armed Services Procurement Regulation (ASPR) requires its use in specific situations, but there appears to be no statutory authority. Even though there is no statutory basis for inclusion of a patent indemnity clause, the Comptroller General continued to espouse the philosophy that the Government must be protected. In order to carry out the provisions of 14 Comp. Gen. 298 previously mentioned, the Comptroller General issued a decision only 19 days later stating:

In order to comply with the requirements of the decision of October 10, 1934, 14 Comp. Gen. 298 . . . the standard form of insurance bond No. 25 should be amended by adding a patent infringement bond specifically obligating the contractor and his surety "to hold the government, its officers, agents, and employees, harmless from liability of any nature or kind, including costs and expenses for or on account of any patented invention, article or process manufactured or used in the performance of that contract, including use by the Government of the articles therein contracted for."  

This decision is poorly worded in that the phrase, "including use by the Government," implies that even after delivery, the contractor and holder of the insurance bond may be liable. In a decision involving interpretation of the patent indemnity clause, the Comptroller General stated to a bidder:

... [a] contractor could not be held responsible if the Government, after obtaining the contract material, should combine it with other materials for use in such a way as to infringe some patent, . . .


25 B-9252, April 17, 1940, 19 Comp. Gen. 876.
This, then, represents the environment in which procurements involving patents were made. The holder, either license or title, had a very definite advantage in the source selection process. Contracting officers were directed to select sources from among those possessing patents; and where the exact effect of patent infringement was not known, bidders were obliged to accept a patent indemnity clause to protect the Government. These two factors no doubt contributed to the award of contracts not to the lowest bidder, and probably did much to discourage smaller contractors who could not afford (or were not afforded) patent rights, and did not relish the idea of indemnifying the Federal Government. As stated in an article in the *Federal Bar Journal*:

> Up until 1958, the patent owner who was otherwise qualified to bid for a government contract was more often than not given preference in the award of the contract. \(^{26}\)

B. POST 1958

The most important single decision in the area of patent infringement rendered by the Comptroller General was the *Herbert Cooper* case. \(^{27}\) The case involved an Air Force procurement for oxygen mask assemblies, and the invitation for bids (IFB) was bid upon by seven contractors. The Herbert Cooper Company was low bidder, but there were three of the seven companies who possessed licenses for certain patented manufacturing and construction techniques. The Herbert Cooper Company was not one of the three. The Secretary of the Air Force requested a determination from the Comptroller General as to the advisability of rejecting the Herbert Cooper bid and awarding to one of the licensed bidders. As previously stated, up to this point, the Comptroller General had encouraged the philosophy of generally

---


observing individual patent rights where possible. The decision thus
rendered was a remarkable shift in guidance and had sweeping repercussions
as shall be shown. The Comptroller General stated that:

In our opinion, to reject the low bid and make an award to one of
the licensees for the purpose of enforcing and protecting the rights
of the patent owners and their licensees would constitute an improper
restriction of competition under the circumstances, and would not
serve the interests of the United States which 28 U.S.C. 1498 was
intended to secure, but would limit the application of the provisions
of that statute. ⁵⁸

The Secretary of the Air Force requested clarification of this ruling
in view of the obvious policy shift and potential implications to all
formally advertised contracts. The Comptroller General therefore
expanded his decision and provided a published decision which read in
part:

It is suggested that the indiscriminate use of the right afforded
to the Government under 28 U.S.C. 1498 would be inimical to and
destructive of the public policy considerations underlying the
patent law. It is our view, however, that section 1498 appears
clearly to constitute a modification of the patent law by limiting
the rights of patentees insofar as procurement of supplies by the
Government may be concerned, and by vesting in the Government a
right to the use of any patents granted by it upon payment of
reasonable compensation for such use. We believe that the statute
is not consistent with any duty on the part of a contracting agency
of the Government to protect the interests of patentees or licensees
with respect to articles which it proposes to purchase, since the
statute itself defines and provides an exclusive remedy for enforce-
ment of the rights as to the Government. Any other interpretation
would appear to us to impose an impossible burden upon Government
procurement officials to determine the applicability and validity
of any patents affecting any articles desired.

Where procurement is to be made by formal advertising, it is our
opinion, notwithstanding what was said in 13 Comp. Gen. 173, that
there is no alternative to the securing of the maximum amount of
competition from firms qualified and willing to undertake the pro-
duction of articles, subject of course, to their willingness and
ability to indemnify the Government against claims of patentees. ⁵⁹

⁵⁸ Ibid.

⁵⁹ 38 Comp. Gen. 276, October 6, 1958.
The decision 13 Comp. Gen. 173 has been previously discussed. The doctrine of the Herbert Cooper case was expanded to cover all types of procurement situations. Specifically, where negotiated procurements are involved, the Comptroller General stated in a letter to Globe Industries, Inc., who was protesting a Defense Supply Agency (DSA) award:

A rationale similar to the one of 38 Comp. Gen. 276 is applicable to objections based on alleged patent infringement in contracts awarded on a negotiated basis.

As a result of these decisions, there was a shift from preferential treatment of contractors, to one of disregard of individual patent holders. A search of the decisions of the Comptroller General, both published and unpublished, subsequent to the Herbert Cooper case revealed over forty cases based on patent infringement. This time period was from October 1958 through January 1974. [See Appendix A.] It would be statistically unsound to attribute the magnitude of the increase to the Herbert Cooper decision, as the number of patents issued was constantly increasing, different procurement philosophies were in vogue, etc.. However, the fact remains, there was an increase of nearly five-fold in protests to the Comptroller General.

The majority of these protests were brought forward by patent holders and licensees who were not awarded contracts. This basic policy, of award without regard to the disposition of existing patent rights, has remained to this date. A representative decision from the current decade

---

30 See supra note 20.

31 Unpublished decision of the Comptroller General, B-148135, 30 April 1962.

32 Examples are: B-145164, May 24, 1961; B-147271, January 10, 1962; B-148135, April 30, 1962, etc.. Decisions of this type are included in [Appendix A].

19
is the case of the Jervis B. Webb Company. Webb protested the award of a contract to Raplstan Incorporated for automated material handling equipment. This was a contract awarded on an IFB let by the New Cumberland Army Depot. Jervis B. Webb Company held two pertinent patents, but was not awarded the contract. In his decision, the Comptroller General stated:

Considering the Act (28 U.S.C. 1498) and its purpose, this office has concluded that Government contracts should not be restricted to patent holders and their licensees where patents are held, . . . Specifically, we held in 38 Comp. Gen. 276 that a procurement agency may not refuse to advertise for an item because of a patent nor refuse to make award to the low bidder because he was not licensed by the patent holder to manufacture the patented article. The procuring agency, of course, is free to require patent indemnity agreements from its suppliers, perhaps should require such agreements in some cases. Even though patent indemnity is not provided for in the invitation, it has been our view that a low bid may not be rejected on the basis that the Government might incur liability for patent infringement. 45 Comp. Gen. 13.33 (emphasis added)

While the shift in policy of the Cooper case was abrupt and apparently is a fixture in procurement philosophy today, the reasons behind the change are not at all clear. One possible explanation is that 1958 was the year of the statutory creation of NASA, and the beginning of the real technological push by the United States. But, the explicit reason for this decision is not as important as the implicit problems placed upon patent holders.

C. THE DILEMMA OF THE PATENT HOLDER

The discussion of the interpretations of 1498 does not reflect the problem associated with the interpretation. The basic fault with the present interpretation of 1498 is the burden placed upon the patent

---

holder who feels his patent has been infringed. There exists a

dichotomy wherein the patent holder himself is now in a less advantageous

position than an unlicensed contractor. In the initial award to the

"lowest bidder," there perhaps is not an extensive argument that the

patent holder is at a disadvantage, but if the award is made to an

unlicensed contractor, the patent holder's problems begin. In discussing

the Decision of the Comptroller General subsequent to the Herbert Cooper
case, Leonard Rawicz, then Patent Counsel, Goddard Space Flight Center,
said:

These decisions have produced some criticism in that some view that

the purpose of 28 U.S.C. 1498 was to assure patent litigation free

procurement only during a national emergency or war; that across the

board use by the Government agencies of Section 1498 is an abuse of
discretion; and that this statute is destructive of patent rights and
the American Patent System as it allows infringement to occur without
any real recourse by the patent owner, because of the delays and costs
attendant to a suit in the Court of Claims or the reluctance of the
Executive agencies to use their administrative authorities to settle
infringement claims equitably.34

There exists other factors which place the patent holder and patent
licensee in a disadvantageous position. The patent holder may be very
reluctant to initiate litigation in the Court of Claims for reasons other
than cost alone; even though the cost of a simple infringement suit has
been estimated at an "actual out-of-pocket cost" has been estimated by
Yeaton at $250,000 and in complex suits, much more.35 There is also
the chance that the instant patent will be declared invalid; such suits

34 Rawicz, L., The Effects of Asserted Patents and Other Proprietary
Rights on Government Procurement, paper presented to the Federal Bar

could, in the mind of the patent holder, place him in an unfavorable position for future procurements; or the patent holder may not be able to devote personnel for the time required for a suit.

The patent holder gets hit in another way also. Since the possession of a license by a contractor is of no value when bids are evaluated, what is the incentive to enter into licensing agreements when the Government will pick up the tab for patent litigation. It has been stated in an excellent work on patent infringement:

There is no question that the current practice simplifies the procurement process by removing the rather complex variable of a bidder's patent and its relevance to the procurement. On the other hand, awarding a contract to the "low bidder" and later compensating the patent owner could ultimately cost the Government more than awarding the contract to the patent owner or one of his licensees.  

An issue which should be disposed of at this point is patent indemnification. Basically, there are two views concerning patent indemnity. The Department of Defense has determined that generally, when an item is procured "off the shelf" or has been previously produced in the commercial market place, then the contractor should indemnify the government by way of the patent indemnity clause.  

There are two strong caveats, however, which practically render the notion of patent indemnification meaningless. These are the fact that the infringement must be adjudged by a court of competent jurisdiction (the Court of Claims) or the administrative settlement made with the consent of the contractor.  

It should be noted that this problem of obtaining the consent of contractor-indemnitors to settlements is one of the primary problems in the use of indemnity clauses . . .

---


37 Armed Services Procurement Regulations (ASPR) 9-103.

38 ASPR 9-103.1.
This and other considerations, such as the deterrence of competition, or increased bid prices through the inclusion of contingencies for possible infringement liability, have led the National Aeronautics and Space Administration to adopt a policy of not requiring patent indemnity except in limited situations involving specifically identified patents. 39

There exists very little court data concerning liability as the result of the patent indemnity clause. The impression received from reviewing literature concerning patent indemnity may best be summed up by referring to an old decision and a relatively new study. In the decision of the Supreme Court when interpreting the 1918 amendment to the Act of 1910 they said:

The purpose of the amendment was to relieve the contractor entirely from liability of every kind for the infringement of patents in manufacturing anything for the Government . . . 40

In expressing their findings, the Aerospace Industries Association stated in a report on Federal patent policy:

The requirement on contractors to indemnify the Government against claims for patent infringement is inequitable in that adequate reserves for contingent liabilities cannot be provided for by the contractor, such requirements increase costs to the Government, and they are contrary to Congressional intent as expressed in 28 U.S.C. 1498. 41

There are also indications that the use of the patent indemnity clause also places a burden on the Government and may be self-defeating. In their final report, the Commission on Government Procurement stated:

There is evidence that in some cases, despite the inclusion of indemnity clauses in contracts, contractors have avoided liability for infringement. The cost to the Government of bringing suit


40See supra note 14.

41Aerospace Industries Association, supra note 2, at 20.
against uncooperative contractors/indemnitors may result in their avoiding full indemnification.\textsuperscript{42}

Based upon the previously cited lack of judicial awards against indemnitors and what appears to be the thrust of 1498 in \textit{Richmond Screw Anchor Co. v. United States} which is referred to above, it would appear that rather than the cost of litigation it might be the low odds of sufficient recovery which thwarts the suit.

The second general view of patent indemnity is held by NASA. The policy of NASA is to restrict the use of the patent indemnity clause to only a few situations, and then only to patents specifically identified.\textsuperscript{43}

The reader is invited to the excellent article by Lawrence Glassman titled, "The Patent Indemnity Clause in Government Contracts."\textsuperscript{44}

D. ASPR AND NASA AUTHORIZATION AND CONSENT

The Armed Services Procurement Regulations and NASA Procurement Regulations are in general agreement concerning authorization and consent clauses used in their respective contracts. The one difference is that NASA does not include the statement of liability in the clause for supplies, as does DOD. The two basic authorization and consent clauses deal with either research and development contracts or supplies contracts. The ASPR clause to be included in research and development contracts states:

\begin{quote}
The Government hereby gives its authorization and consent for all use and manufacture of any invention described in and covered by
\end{quote}


\textsuperscript{44}See supra note 23.
a patent of the United States in the performance of this contract or any part hereof or any amendment hereto or any subcontract hereunder (including any lower-tier subcontract).  

This clause is to be included in research and development contracts or mixed research and development and supply contracts where the main purpose of the contract is the experimental portion. The exception for the inclusion of the clause is the case where performance and delivery of the contract is outside the United States, its possession or Puerto Rico.  

The clause to be included in contracts for supplies and services is much more restrictive than the clause for research and development as to the conditions under which "authorization or consent" is granted. The clause is lengthy, however its inclusion at this point is necessary to show the marked difference in scope. 

The Government hereby gives its authorization and consent (without prejudice to any rights of indemnification) for all use and manufacture, in the performance of this contract or any part hereof or any amendment hereto or any subcontract hereunder (including any lower-tier subcontract), of any invention described in and covered by a patent of the United States. 

(i) embodied in the structure or composition of any article the delivery of which is accepted by the Government under this contract, or, 

(ii) utilized in the machinery, tools or methods of use of which necessarily results from compliance by the contractor or the using subcontractor with 

(a) specifications or written provisions now or hereafter forming a part of this contract, or

45 ASPR 9-102.2. (Hereafter referred to as the "broad" clause.)

46 ASPR 9-102(c).
(b) specific written instructions given by the contracting officer directing the manner of performance

The entire liability to the Government for infringement of a patent of the United States shall be determined solely by the provisions of the indemnity clause, if any, included in this contract or any subcontract hereunder (including any lower-tier subcontract), and the Government assumes liability for all other infringement to the extent of the authorization and consent hereinabove granted. (paragraphs added).

This clause is included in supply and services contracts except for the exception noted for the research and development clause, or when the research and development clause is used in a mixed research and supply contract. The supply clause is much more restrictive to the contractor in that there are specific phases such as "which is accepted," or "specifics or written provisions ..." or "specific written instructions ..." All these requirements tend to place the contractor in a more precarious position insofar as being subject to an injunction by the patent holder is concerned. If a court were to determine that the contractor had infringed an existing patent in the absence of authorization and consent, then an injunction would quite probably be issued and the contractor could be facing suit in a District Court (as opposed to the Court of Claims where the provisions of 1498 are involved, and where the defendant would be the Government).

An injunction against a contractor involved in a Government contract can only occur when the contracting officer fails to exercise his options available to prevent it. There could be circumstances where it is felt that the best interests of the Government would be served by permitting an injunction. There are numerous methods which could be employed by

47 ASPR 9-102.1. (Hereinafter referred to as the "restrictive clause.")

48 Ibid.
the Government to avert an injunction, such as amendment of the contract to include the broad authorization and consent clause if any research is involved, execute a supplemental agreement to require the use of an infringing process or machine, or in the case of articles, accept a token unit which then would insure "authorization and consent." An excellent analysis of the options available to the Government to avert an injunction which includes the above, has been written by Walter Henderson.  

In the event that authorization or consent is not expressed, as would be in the above cases, there also exists the doctrine of "Implied Consent." An early landmark case involving implied authorization and consent was the case of Allgrunn v. United States. The decision of the court was that the process in question (Here a process for rifling operation in the manufacture of guns) was of such a technical breakthrough that, "It is inconceivable that any other course would or could have been pursued." Writing for the George Washington University, R. Y. Peters has compiled the following factors which often are germane to the determination of authorization and consent:

(1) knowledge by the contracting officer or other Government official of the use of a patented invention by the contractor and the lack of objection to such use;

(2) the requirement of such use by the contracting officer or other Government officials;

(3) a direct benefit accepted by the Government resulting from the use of the patented invention by the contractor;

---


50 Allgrunn v. United States, 67 Ct. Cl. 1 (1929).

51 Id. at 48.
(4) a requirement in the contract that the contractor obtain maximum production which necessarily resulted in a product containing ingredients covered by a patent and knowledge by the Government officials of such circumstances;

(5) the presence of an authorization and consent clause in the prime contract, although no such clause is included in the subcontract;

(6) although there is no authorization and consent clause in the contract, the occurrence of the conditions of ASPR 9-102.1 (the supplies authorization and consent clause) such as acceptance of articles covered by a patent by the Government, or use of machinery or methods necessarily results from compliance with the contract specifications or written instructions of the contracting officer; (parentheses added)

(7) where an invitation to bid specifies that the subject matter of the contract is the patent owner's article (for example, by brand name and model number) or equal. 52

The above list is based upon court decisions in most cases. Perhaps the most obvious condition which could be interpreted as granting authorization and consent is that which has become known as "The Christian Doctrine." This case involved litigation arising from the failure of a contract to include a required termination clause. The court, holding that ASPR had the force and effect of law, read into the contract the theory that in order for the contract to be valid, the clause must be present and the contracting officer had no authority to contract contrary to regulations. 53 Therefore, if an authorization and consent clause is not included in a contract under conditions mandated by Chapter VII and Chapter IX of ASPR, it may well be read in. In addition, the Comptroller General has ruled that except in an extremely unusual circumstance the contracting officer had no authority to expressly withhold authorization and consent. 54

52 Supra note 39, at 87-88.


This rather brief discussion is not intended to fully cover the entire scope of authorization and consent vis-a-vis contracts, but rather to once more highlight the plight of the patent holder. In this instance, the patent holder would experience a great deal of difficulty in bringing a suit against an infringing contractor because of the broad interpretation conferred upon the concept of "authorization and consent." The problem of the patent holder is real, but this is not to imply that the Government should subject itself to contract slowdowns simply because it is costly for the patent holder to enter the Court of Claims. The use of the restrictive form of authorization and consent clause (ASPR 9-102.1), however, is questionable, and the majority of "implied authorization and consent" interpretations have arisen in an effort to fit the restrictions of the clause. Specific conclusions and recommendations concerning authorization and consent will be presented in the appropriate chapters.

E. LEGISLATIVE EFFORTS

As stated in the beginning of this thesis, a review of pending legislative bills failed to reveal a single one directed towards 1498. There were several attempts in the past, however, which received attention but failed to make it out of Committee. Two of the more widely discussed bills will be briefly reviewed.

1. The Williams Bill, S. 1047

The Williams Bill was introduced in the Senate as S. 1047 in 1965 and again as S. 731 in January of 1967. The bill was referred to the Committee on Judiciary and there it died. In total, there were sixteen bills introduced in the 89th Congress which were similar to the Williams
The Williams Bill would have modified 1498 by the addition of a new paragraph stating that: ("this section referring to 28 U.S.C. 1498)

Nothing in the section shall be construed to authorize the use or manufacture by or for the United States of any invention described in and covered by a patent of the United States, which has not previously been held invalid by an unappealed or unappealable judgment or decree of a court of competent jurisdiction, without license of the owner thereof, unless the Secretary of Defense or his delegate, shall determine in the case of each such invention that the national security of the United States requires such use or manufacture.

The Department of Defense and the Comptroller General both displayed disapproval of the bill, while a segment of industry, most notably the Chemical Industry, supported the bill. Speaking for the Department of Defense, Mr. J. M. Malloy, Deputy Assistant Secretary of Defense stated:

...[T]he Department of Defense strongly opposes S. 1047. The only amendment to 28 U.S.C. 1498 we would recommend is to permit a suit by a patent owner directly against an infringing contractor in a case in which the Government is satisfied that infringement has taken place, and the contractor has indemnified the Government against patent infringement but refuses to settle. Other than this type of amendment, a practical way to accord greater recognition to patent owners is to restore discretion to contracting officers to deal solely with patent owners and their licensees in appropriate circumstances. This would require amendments to the procurement statutes. (emphasis added.)

This short statement, in this author's opinion, is the heart of the entire problem of inequitable treatment of patent holders and licensees.

When Mr. Williams reintroduced his bill as S. 731 in 1967, his intentions again seemed laudable, but the inclusion in the Congressional Record of a lengthy resolution from the International Chemical Workers Union, AFL-CIO seemed to detract from procurement problems and reflected

55 Supra note 36, at 16.

56 Id. at 16-17.

57 Id. at 18.
the needs of labor with respect to foreign procurements only! A portion of the resolution which still referred to S. 1047 stated:

... the New Jersey State AFL-CIO in Convention voice support for Senator William's Bill S-1047 ... designed to protect and strengthen the American patent system by insuring that no government agency be permitted to purchase products manufactured abroad through stolen or infringed American patents ... 58

It is rather difficult to relate the phrase "no government agency ... manufactured abroad" to the stated intent of S. 1047 and S. 731. Perhaps this is one reason they never emerged again.

2. The Morris Bill, H.R. 10022

The Morris Bill, H.R. 10022 in the 89th Congress and H.R. 2898 in the 90th Congress met the same fate as the Williams' Bills; death by committee. The approach taken by representative Morris was to expand existing procurement statutes namely the Armed Services Procurement Act of 1947 and the Federal Property and Administrative Services Act of 1949. The basis of H.R. 10022 was to permit an additional exception to the existing seventeen exceptions to formal advertising. This exception would arise if a patent infringement would result from an award and would permit negotiation among the patent holder and licensees only. A detailed analysis of H.R. 10022 has been made by Alnutt and Mossinghoff in their previously cited article. When Representative Morris reintroduced his bill as H.R. 2898 in the 90th Congress, 1st Session, the approach had been changed to recommend a Government-wide preprocurement licensing approach. The bill was designed to:

... authorize the procurement of patent licensees and the consideration of royalties payable under such licensees in evaluating competing

bids or offers in situations where, after formal advertising for bids or solicitations of negotiated offers, an allegation or patent infringement is received by the contracting officer.59

The Morris bills certainly captured the plight of the patent holder and seemed to be a direct attack on the problem. Neither of the above bills reported out of Committee. (H.R. 2898 was referred to the Committee on Government Operations.)

F. NASA'S "INSTANT LICENSE"

One of the few innovations in the area of patent licensing is the pre-procurement licensing policy used by the National Aeronautics and Space Administration. This policy is specified in NASA Procurement Regulation 9–102. NASA requested that the Comptroller General rule on the applicability and viability of this new approach. The purpose of this new change is best seen from a NASA Procurement Regulation Directive issued subsequent to the Comptroller General's decision to permit a test of this policy. In NASA's words:

This policy provides that upon timely notice by a patent owner that a proposed NASA procurement will infringe his privately owned U.S. patent, and upon a determination by NASA patent counsel that the procurement will result in an infringement, NASA will enter into a license agreement with the patent owner for that procurement only if certain conditions are satisfied.60

This is a major deviation from existing policy whereby NASA will become a licensee prior to procurement.

The Comptroller General decision in response to NASA's letter requests of 13 June and 14 July 1966 was extremely lengthy and presented a great deal of background on 28 U.S.C. 1498. Several points as made by NASA

59 Congressional Record Index, 90th Congress, p. 1693, 1968.

are referenced by the Comptroller General and are worth quoting. In speaking of NASA, the Comptroller General stated:

You advise that as a practical matter, section 1498 does not always afford an adequate and effective remedy to the patent holder. Small business concerns, for example, often are loath to engage in protracted litigation with the Government, and administrative settlements tend to be time consuming and costly.  

and

Further you report that NASA does not generally include "patent indemnity" clauses in its contracts. You explain that there are several reasons for this. Such clauses may have the effect of unnecessarily increasing contract costs because of the inclusion of a contingency for patent infringement. They discourage some prospective bidders from bidding ...  

and

at present, the unlicensed firm is offered free use of a patent on a Government contract. Consequently, where a patented invention would be useful on Government programs, a prospective licensee would be discouraged from taking out a license on the patent when free use of it is likely to be offered by the Government. You feel that privately financed research is definitely discouraged under the current practice, with the Government as the ultimate loser.  

(emphasis added)

The above quotations, expressing NASA's concern over the then existing state of patent infringement and indemnity was strongly worded and, in fact, a condemnation of existing policies. The Comptroller General agreed with NASA in principle, and approved the proposal for an unspecified trial period. The general form of NASA's pre-procurement licensing policy is as follows:  

1. All invitations to bidders would contain a "Patent Royalties" clause, signifying NASA's willingness to enter into a licensing agreement with the patent holder for the specific procurements only.

---


62 Ibid.

63 Ibid.

2. The patent holder gives NASA "timely notice" that the procurement will infringe specific patents, and if

3. NASA's patent counsel then confirms the possibility of infringement and the apparent (at least) validity of the patent, and

4. The Contracting Officer determines that the licensing agreement will not unduly delay procurement, and

5. The patent holder agrees to license NASA at a rate not to exceed the lowest previously executed commercial royalty agreement, then

6. The agreed upon royalty rate becomes a factor in bid evaluation and in the event award is made to an unlicensed contractor, NASA will pay the royalty to the patent holder.

For a detailed analysis of the original NASA pre-procurement licensing approach, the reader is referred to the previously cited article from the Notre Dame Lawyer. This policy has not been widely used. For one reason, in 1970, by NASA PRD 70-14 of 2 November the use of this concept was restricted in the research and development field to those procurements resulting in hardware or the use of specific processes. The original approach by NASA still remains as the only agency challenge to the decision of the Comptroller General prohibiting the use of the possibility of patent infringement as a factor in bid evaluations. The inherent soundness of the NASA pre-procurement licensing policy was strongly stated by Study Group No. 6 in their final report for inclusion in the Report of the Commission on Government Procurement:

The acquisition of licenses prior to use should be encouraged as the most efficient and equitable method for recognizing private patent rights and for reducing administrative claims and court actions. As a model of how each agency might handle this responsibility, we point to the pre-procurement licensing procedures of NASA.66

65 Supra note 36, at 21.

III. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are those of the author and are based on a review of the material as reflected in the bibliography and references as presented in this thesis. The recommendations to be found in the Report of the Commission on Government Procurement are in some cases reflected below and in some cases not. It is generally accepted that the Report of the Commission reflects the largest and most complete study of Government procurement ever done. The following conclusions and recommendations are therefore, not meant to be in competition with those of the report, and are more restricted in scope dealing only with those areas directly related to 28 U.S.C. 1498.

A. CONCLUSIONS

1. The patent holder does not enjoy an equal let alone a preferred position in the award of bids.

2. 28 U.S.C. 1498 does perform its intended function: that of insuring continuation of work by the bar to injunction, and it provides an avenue for the patent holder to seek redress.

3. The interpretations placed upon 28 U.S.C. 1498 by the Comptroller General encourage the unauthorized use of patents. (The exception being NASA.)

4. The patent indemnity clauses as used from ASPR are of little value in shifting liability from the Government to the contractor for infringement.

5. The restrictive authorization and consent clauses are contrary to the intent of 28 U.S.C. 1498.
6. Legislative changes which have been proposed have not had sufficient support, and it is unlikely that efforts to change 28 U.S.C. 1498 will succeed.

B. RECOMMENDATIONS

1. All Federal agencies should be granted statutory authority to procure licenses. (Department of Transportation, for example, has no such authority.)

2. All Federal agencies should be encouraged to develop pre-procurement licensing policies similar to NASA.

3. 28 U.S.C. 1498 should not be modified, as it is sufficient to protect the patent holder given changes in pre-procurement licensing.

4. NASA's policy concerning patent indemnification should be adopted by all procuring agencies. (Patent indemnification generally not used except in specific item procurements.)

5. Only the broad authorization and consent clauses should be used in contracts. The restrictive clauses of ASPR and NASAPR are contrary to the intent of 28 U.S.C. 1498.

As an area of further study, it is suggested that a pilot procurement system be developed to evaluate the effect of pre-procurement licensing. This could be accomplished by two procurements, for example, each requiring the use of a patented article or process. In one case, the pre-procurement licensing approach could be used and in the other, business as usual. The final costs could then be compared.

The area of patent rights and individual rights, for that matter, are going to be of ever-increasing concern. This paper has indicated that there exists a problem involving the rights of the patent holder, and changes should be made.
APPENDIX A. SELECTED DECISIONS OF THE COMPTROLLER GENERAL,
POST OCTOBER 1958

<table>
<thead>
<tr>
<th>Decision Number</th>
<th>Date</th>
<th>Citation</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-141459</td>
<td>May 10, 1960</td>
<td>(39 C.G. 760)</td>
</tr>
<tr>
<td>B-147719</td>
<td>February 12, 1962</td>
<td>(41 C.G. 536)</td>
</tr>
<tr>
<td>B-156692</td>
<td>July 2, 1965</td>
<td>(45 C.G. 13)</td>
</tr>
<tr>
<td>B-139585</td>
<td>July 2, 1959</td>
<td></td>
</tr>
<tr>
<td>B-145164</td>
<td>May 24, 1961</td>
<td></td>
</tr>
<tr>
<td>B-145326</td>
<td>July 29, 1961</td>
<td></td>
</tr>
<tr>
<td>B-147271</td>
<td>January 16, 1962</td>
<td></td>
</tr>
<tr>
<td>B-147536</td>
<td>March 22, 1962</td>
<td></td>
</tr>
<tr>
<td>B-148135</td>
<td>April 30, 1962</td>
<td></td>
</tr>
<tr>
<td>B-147509</td>
<td>July 27, 1962</td>
<td></td>
</tr>
<tr>
<td>B-149392</td>
<td>August 1, 1962</td>
<td></td>
</tr>
<tr>
<td>B-151411</td>
<td>June 10, 1963</td>
<td></td>
</tr>
<tr>
<td>B-151635</td>
<td>August 5, 1963</td>
<td></td>
</tr>
<tr>
<td>B-152389</td>
<td>December 23, 1963</td>
<td></td>
</tr>
<tr>
<td>B-153258</td>
<td>March 26, 1964</td>
<td></td>
</tr>
<tr>
<td>B-154001</td>
<td>June 22, 1964</td>
<td></td>
</tr>
<tr>
<td>B-154529</td>
<td>October 7, 1964</td>
<td></td>
</tr>
<tr>
<td>B-155884</td>
<td>May 18, 1965</td>
<td></td>
</tr>
<tr>
<td>B-156709</td>
<td>July 6, 1965</td>
<td></td>
</tr>
<tr>
<td>B-156802</td>
<td>July 12, 1965</td>
<td></td>
</tr>
<tr>
<td>B-156854</td>
<td>July 27, 1965</td>
<td></td>
</tr>
<tr>
<td>B-157485</td>
<td>November 26, 1965</td>
<td></td>
</tr>
<tr>
<td>B-157541</td>
<td>February 10, 1966</td>
<td></td>
</tr>
</tbody>
</table>

37
<table>
<thead>
<tr>
<th>Code</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-158790</td>
<td>April 15, 1966</td>
</tr>
<tr>
<td>B-136916</td>
<td>September 12, 1966</td>
</tr>
<tr>
<td>B-162385</td>
<td>November 20, 1967</td>
</tr>
<tr>
<td>B-162682</td>
<td>December 26, 1967</td>
</tr>
<tr>
<td>B-162998</td>
<td>May 7, 1968</td>
</tr>
<tr>
<td>B-166072</td>
<td>March 28, 1969</td>
</tr>
<tr>
<td>B-166788</td>
<td>July 31, 1969</td>
</tr>
<tr>
<td>B-167152-/1</td>
<td>August 14, 1969</td>
</tr>
<tr>
<td>B-167152-/2</td>
<td>August 14, 1969</td>
</tr>
<tr>
<td>B-167046</td>
<td>September 29, 1969</td>
</tr>
<tr>
<td>B-168264</td>
<td>December 15, 1969</td>
</tr>
<tr>
<td>B-168013</td>
<td>June 26, 1970</td>
</tr>
<tr>
<td>B-170789</td>
<td>December 14, 1970</td>
</tr>
<tr>
<td>B-169883</td>
<td>April 9, 1971</td>
</tr>
<tr>
<td>B-170698</td>
<td>May 4, 1971</td>
</tr>
<tr>
<td>B-172159</td>
<td>May 4, 1971</td>
</tr>
<tr>
<td>B-174544</td>
<td>February 8, 1972</td>
</tr>
</tbody>
</table>


*Decisions of the Comptroller General*, United States General Accountin, Office.

*Digest of Public General Bills and Resolutions*, Library of Congress.


United States of America Congressional Record, United States Government Printing Office.


United States Reports, United States Government Printing Office.

United States Statutes at Large, United States Government Printing Office.