



US005893852A

United States Patent [19]

[11] Patent Number: **5,893,852**

Morales

[45] Date of Patent: **Apr. 13, 1999**

[54] **STENT CRIMPING TOOL AND METHOD OF USE**

WO 98/19633 5/1998 WIPO .

OTHER PUBLICATIONS

[75] Inventor: **Stephen A. Morales**, Mountain View, Calif.

U.S. Patent Application Serial No. 08/795,335 filed Feb. 4, 1997.

[73] Assignee: **Advanced Cardiovascular Systems, Inc.**, Santa Clara, Calif.

U.S. Patent Application Serial No. 08/837,771 filed Apr. 22, 1997.

[21] Appl. No.: **09/069,011**

U.S. Patent Application Serial No. 08/089,936 filed Jul. 15, 1997.

[22] Filed: **Apr. 28, 1998**

U.S. Patent Application Serial No. 08/962,632 filed Nov. 3, 1997.

[51] Int. Cl.⁶ **A61M 29/00**

The eXtraordinary Stent, C.R. Bard Brochure (Undated).

[52] U.S. Cl. **606/108**

Primary Examiner—Michael Buiz

[58] Field of Search 606/198, 191–195, 606/1, 108; 29/515, 516

Assistant Examiner—Vikki Trinh

Attorney, Agent, or Firm—Fulwider Patton Lee & Utecht, LLP

[56] References Cited

[57] ABSTRACT

U.S. PATENT DOCUMENTS

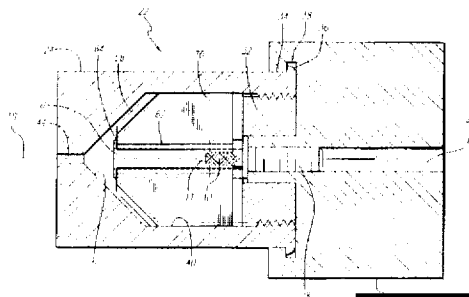
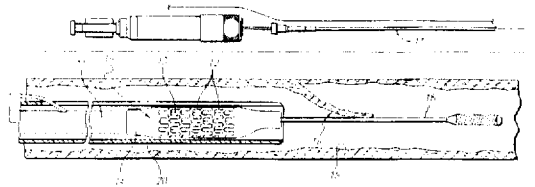
A stent crimping tool for firmly and uniformly crimping a conventional or radioactive stent onto a balloon catheter is constructed from a proximal section rotatably connected to a distal section, the two cylindrical sections forming the transparent housing. A cylindrical cavity having a tapered end is formed into the proximal section. Inside the cavity is affixed a transparent cylindrical collar having radial slots leading to a central passage extending along its axis, and a conical end that fits into the tapered end. Teeth made of trapezoidal shape flat plates each having an angular proximal edge and a radiused edge slide into their respective slots in the collar. A transparent screw feed having a hollow core and a slotted head that receives the radiused edge of each tooth/plate is threaded to the distal section. A balloon catheter is passed through a passage in the proximal section and the collar and an uncrimped stent positioned in the hollow core of the screw is loaded thereon. Rotating the distal section of the housing advances the screw and plates toward the tapered cavity, which has angled walls that force the plates to converge radially inward. This convergence causes the radiused edges of the plates to collectively crimp the stent onto the balloon.

696,289	3/1902	Williams .	
4,468,224	8/1984	Enzmann et al. .	
4,576,142	3/1986	Schiff .	
4,644,936	2/1987	Schiff .	
4,681,092	7/1987	Cho et al. .	
4,697,573	10/1987	Schiff .	
4,901,707	2/1990	Schiff .	
4,907,336	3/1990	Gianturco .	
5,132,066	7/1992	Charlesworth et al. .	
5,133,732	7/1992	Wiktor .	
5,183,085	2/1993	Timmermans .	
5,189,786	3/1993	Ishikawa et al. .	
5,437,083	8/1995	Williams et al. .	
5,546,646	8/1996	Williams et al. .	
5,626,604	5/1997	Cottone, Jr.	606/108 X
5,630,830	5/1997	Verbeek .	
5,653,691	8/1997	Rupp et al. .	
5,738,674	4/1998	Williams et al. .	
5,746,764	5/1998	Green et al. .	
5,783,227	7/1998	Dunham .	
5,785,715	7/1998	Schatz .	

FOREIGN PATENT DOCUMENTS

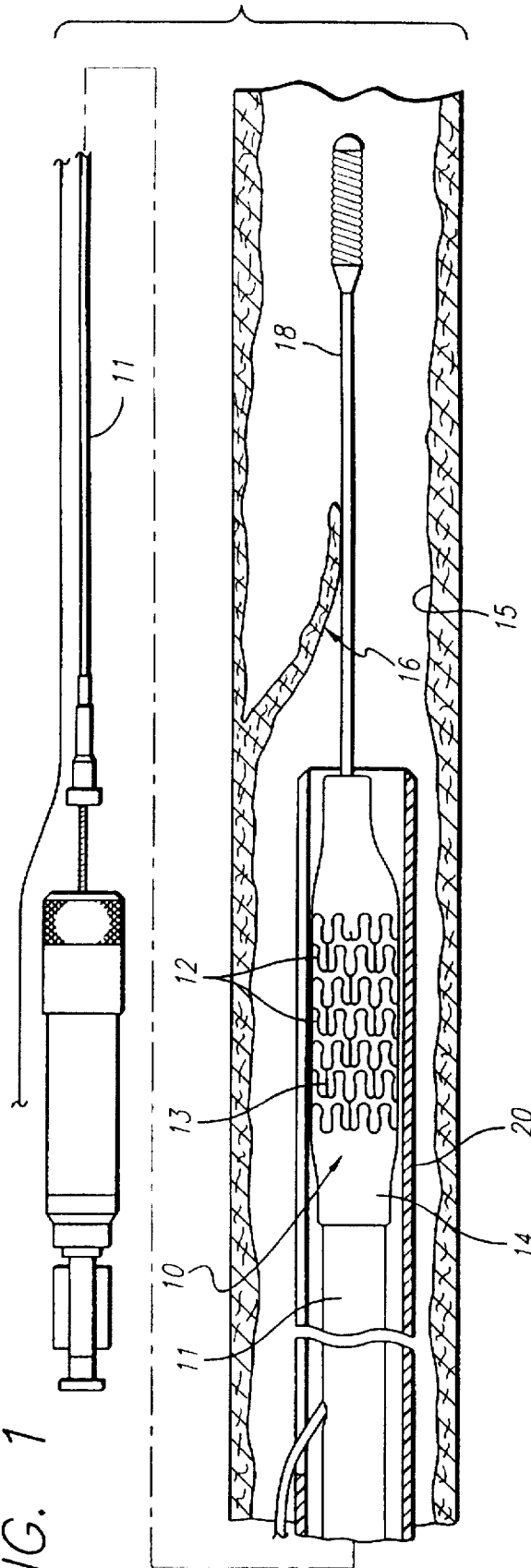
159065	2/1921	United Kingdom .
WO 98/14120	4/1998	WIPO .

22 Claims, 6 Drawing Sheets



EDWARDS LIFESCIENCES EX 1007

FIG. 1



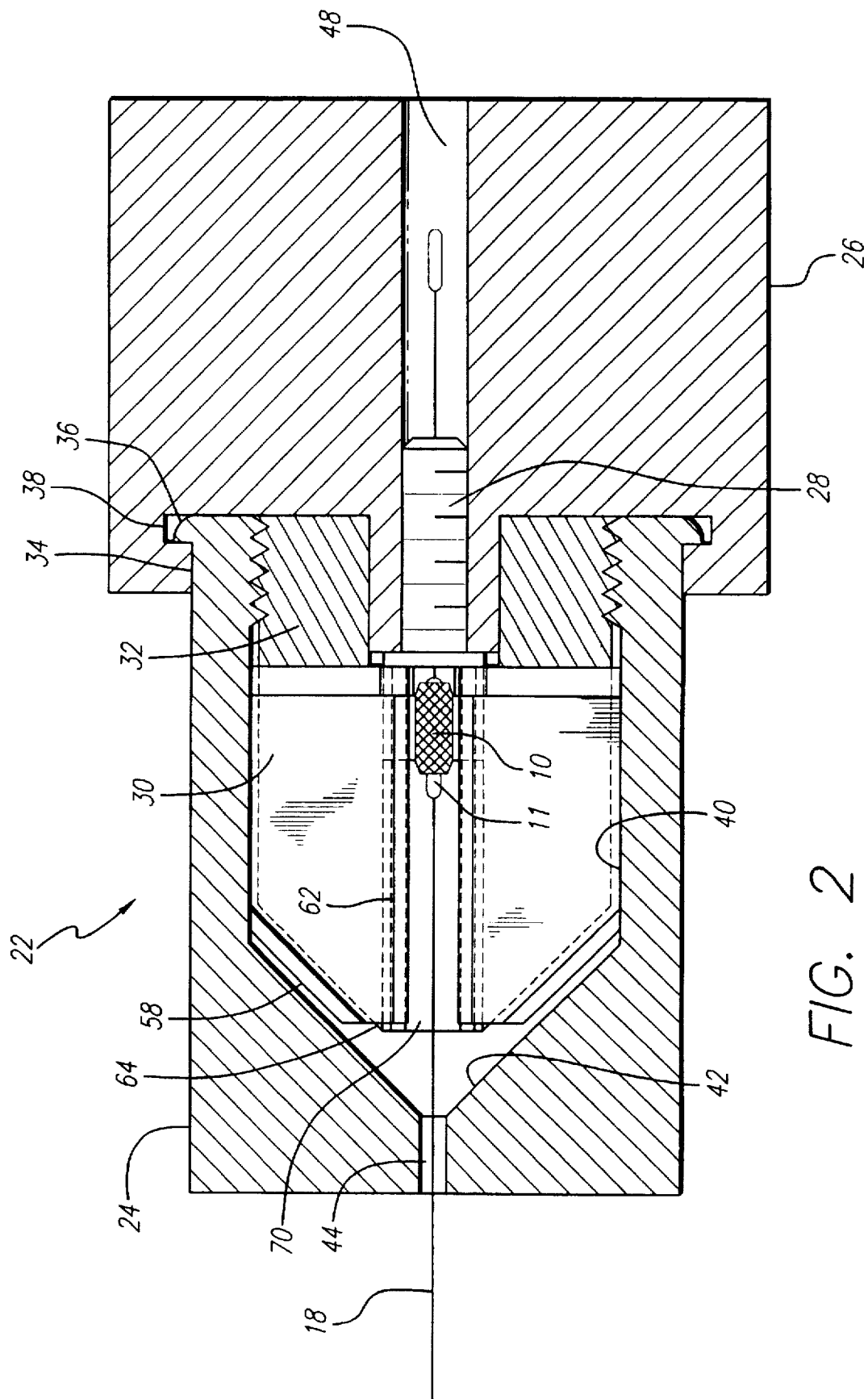


FIG. 2

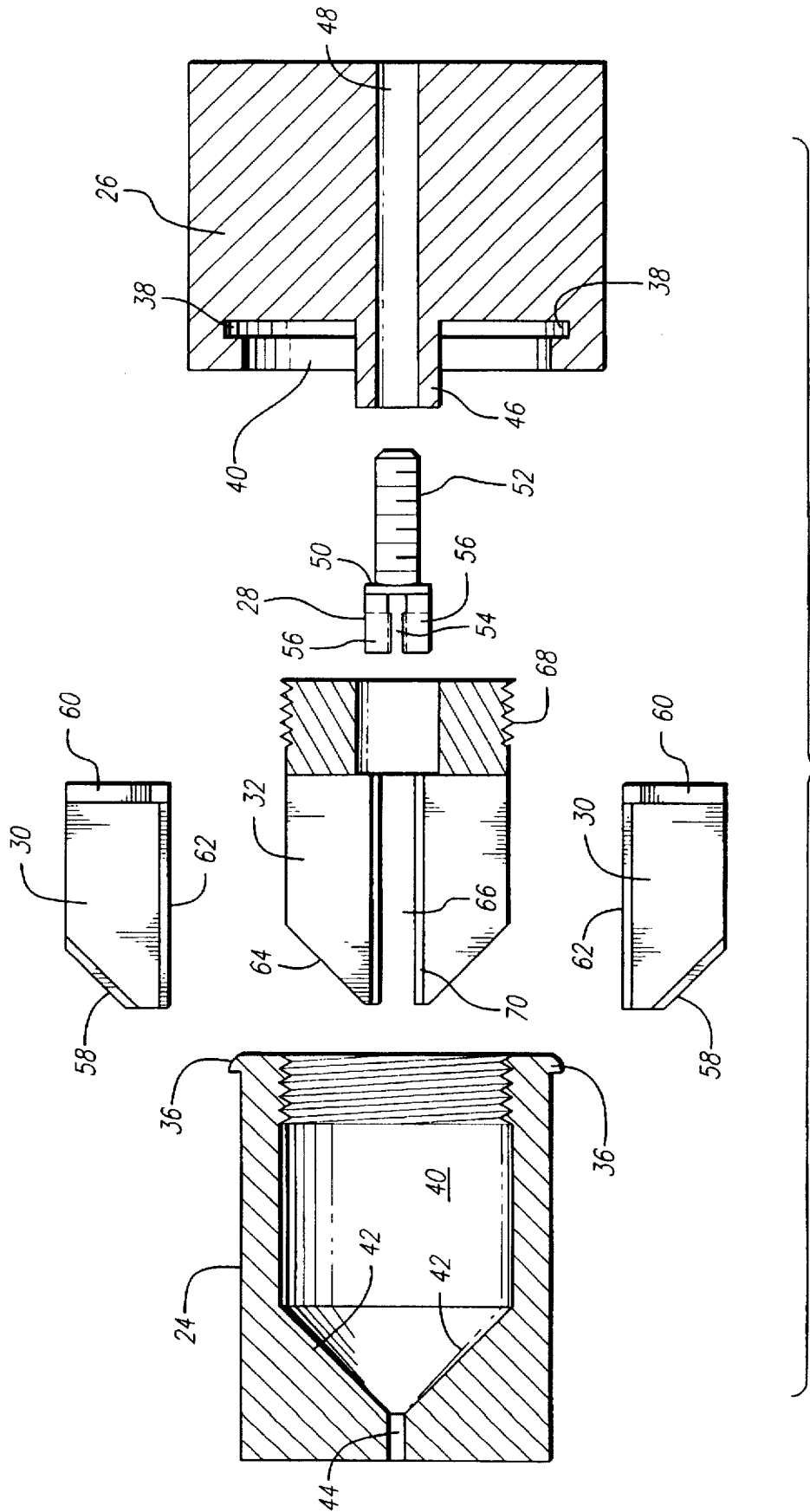


FIG. 3

FIG. 4B

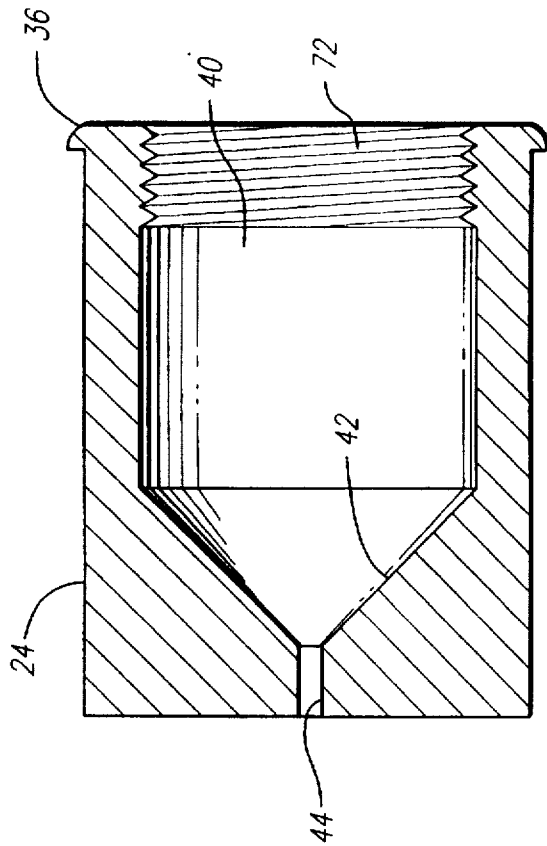
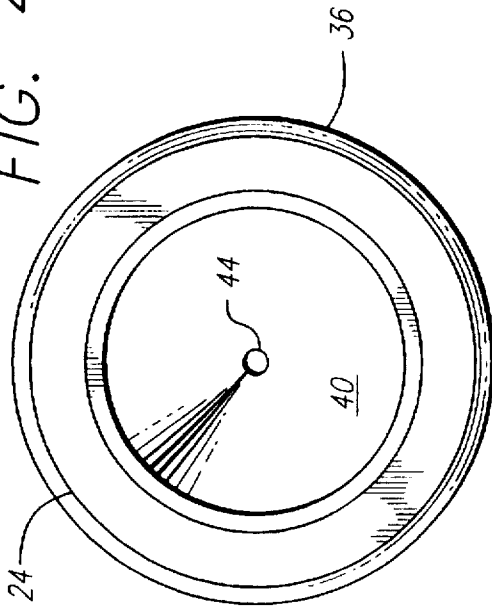


FIG. 4A

FIG. 5B

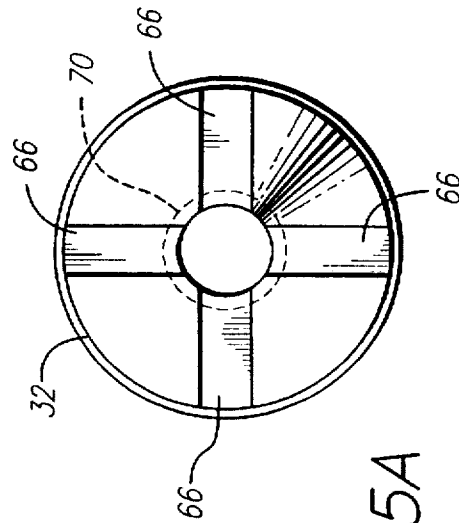
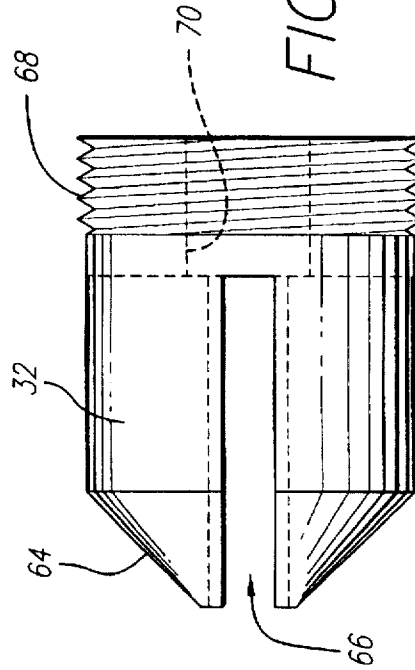


FIG. 5A

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.