

# The Spinning Reels of Edward F. Small

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Contrary to what Lois Lenski may have written, Engineer Small was a prolific inventor and a designer of fishing reels. Edward F. Small invented at least three spinning reels that found their way to market, and two of them are well known to collectors. The earliest of his reels is both the most unusual and least known. Nevertheless, it is the reel in whose production Small was most intimately involved.

In the midst of the Great Depression, Small, a mechanical engineer living in Newtonville, Massachusetts, a suburb of Boston, found the courage to sue his employer, the Heywood-Wakefield Company. Small had invented a swiveling chair (inspired, we're told, by an electric toaster) that was meant for use in railroad coaches. Despite his rejection of the company's offer for the invention, the company proceeded to manufacture the chair. Small successfully contended that he had invented the chair on his own time and was granted royalties by a Federal Court in 1936.<sup>1</sup>

By 1940, Small was living at 32 Howard St., Newton Corner, where he would remain until his name disappeared from local business directories. From 1940 through 1948, he was listed as a designer, and by 1949, he was employed as the Chief Engineer of the Compo Shoe Machinery Corporation.

Small continued to exercise his creative talents on his own time. On June 16, 1949, he submitted a patent application for a side-mounted spinning reel with an unusually thin spool and a unique means of retrieving the line. The patent was granted on July 4, 1950.

The reel's disc-like spool was housed in a shallow cup. The line ran from between the edge of the spool and the cup, over the top of the spool, down through the open center of the spool/housing assembly. As it left the bottom of the assembly, it turned to flow from the reel foot toward the first rod guide. Line retrieval was accomplished with a swiveling arm that held the line while the cup housing was rotated to wind the line onto the spool. Cross-

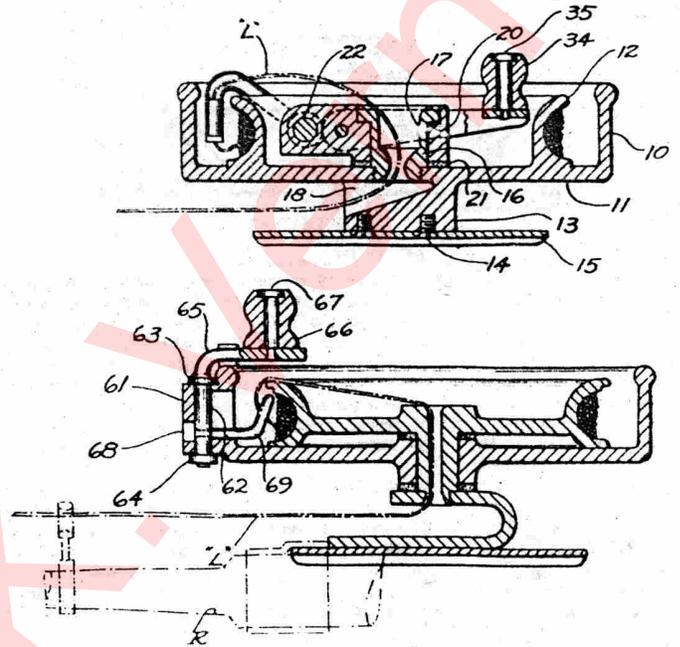


Figure 1. Cross-sections of Edward F. Small's alternate designs for his spinning reel, patented on July 4, 1950. The line in the upper reel runs up through the center of the spool to the edge of the spool, where it passes through the tubular end of a swiveling arm. The cup (10) rotates to wind the line onto the spool. The arm is swung clockwise for casting, so its end is positioned near the spool's center. In the lower reel, a wire hook (69) retains the line while the cup is rotated. For casting, the hook is swung toward the left, freeing the line.

sections of two alternate designs are shown in Figure 1. In both cases, the line-retaining arm could be swung out of the way for casting.

A month before his patent was granted, Small applied for a second reel patent, allegedly an improvement of his original design, which featured a line guide integral with the reel foot. This patent was granted on October 14, 1952.

By 1953, Small's designs were being incorporated in "The Cormorant Fishing Reel," touted as an "All-Purpose" reel suitable for use on baitcasting, spinning, trolling, and fly rods. In Newton directories for that year, Small was listed for the first time as President, E.F. Small & Sons, Inc. The com-



Figure 2. The E. F. Small "Cormorant" reel. The crank is in its retrieval position. A sheet-metal ring snaps into place within the edge of the spool cup and keeps the line from billowing out.

pany was located in Boston, and its name appeared on some, but not all, of the "Cormorant" reels seen by collectors.

Also in 1953, Bickford & Carrier, a long-standing machine shop in Greenfield, Massachusetts, about seventy-five miles west of Boston, was first listed in that city's directory as a manufacturer of fishing tackle. The firm had been founded in 1920 as O. S. Bickford & Son, and by 1940 became Bickford & Carrier after Howard P. Carrier became a partner. Until "fishing tackle" was added in 1953, the shop specialized over the years in various areas, including machine tool design, electric motor repair, and gear cutting.



Figure 3. The center of the reel, viewed from below. The line exits through a hole in the foot bracket. A thumbscrew adjusts drag against the reel cup.



Figure 4. "Cormorant" spools bearing the E. F. Small & Sons (top) and Bickford & Carrier names. The lower-right reel has a knurled nut for drag adjustment.

"Fishing tackle" was included in the firm's directory listings through 1956, after which the company no longer was listed.

Perhaps the majority of "Cormorant" reels in collectors' hands are labeled "The E. F. Small Cormorant All Purpose Fishing Reel" and bear the Bickford & Carrier name. The two different company names on these reels might suggest that they were produced by the two at different times. It is possible that Small's company made the reels for a year or two, perhaps until the idea of outsourcing the manufacturing to Bickford & Carrier was deemed a better procedure. However, it seems more likely that Small & Sons was established to market the reel and that it was made exclusively in Greenfield. The labeling on the reels might simply have changed over time, perhaps because Bickford & Carrier wanted some recognition for their work.

The "Cormorant" was made of aluminum, and it was simpler than the reels shown in the patent designs. The short crank swiveled an attached wire hook that retained the line during retrieval. A tubular screw, turned by a spanner wrench, clamped the spool, cup, and foot together. The line went through the center of the reel, then turned and left the reel foot through a line guide, merely a hole punched through one flange of the foot. A thumbscrew-adjustable drag was located between the flanges of the reel foot (Figure 3). A thin ring of aluminum snapped into



Figure 5. An Ocean City #350 "Spinalong" reel.

place within the periphery of the cup to prevent the line from billowing out during casting.

Some of the Greenfield-labeled "Cormorants" show evidence of minor evolution during the few years that they were built. What are probably later versions are clamped together with a knurled nut that also acts as an adjustable drag, replacing the drag on the bottom of the reel. The reel seems to have been available at least from 1953 until 1956, possibly a year or two longer.

Small's directory listings did not mention his occupation again until 1959, when he was listed as a consulting engineer. By 1963, his name no longer occurred in city directories. However, he obviously had not been putting all his eggs in his "Cormorant"



Figure 6. A Holliday reel, showing the line-pickup slot on the spool cup edge, adapted from Small's "finger" design.

basket. On Dec. 10, 1953, he submitted a patent application for the invention of what would be manufactured and marketed by Ocean City Manufacturing Co., of Philadelphia, as the #350 "Spinalong" reel. This inexpensive, odd little reel employed a pivoting finger on a rotating cup to grab the line and wind it on to a non-reciprocating spool. Like the arm on the "Cormorant," the finger was swung out of the way for casting. Judging by the numbers of these reels seen on show tables, we are compelled to agree with Small that the reel was "inexpensive to manufacture and yet is durable and highly satisfactory in operation."

In contrast to the "Cormorant," designed to prevent line billowing, the "Spinalong" required such billowing during the cast. In retrospect, it is easy to critique the design of the earlier reel because of the convoluted path that the line was required to follow on its journey to the first rod guide. The "Spinalong" released and retrieved its line in a more direct manner. In fact, the reel was, essentially, a closed-face spinning reel without the conical "closed-face." It relied on a retractable pick-up device to wind the line on to a stationary spool.

Small's *tour de force* was the reel he patented on March 31, 1959, almost three years after he had submitted the application. It was the sleek, bullet-shaped spinning reel manufactured in Italy and sold by the Holliday Reel Co., East Taunton, Mass.<sup>2</sup> To eliminate the need for a bail, Small provided a finger at the edge of the spool cup to pick up the line automatically when the reel was cranked. Equipped with a drag and anti-reverse mechanism, like most of the "mainstream" spinning reels of the period, the Holliday also featured interchangeable spools and cups for varying line capacity. The Holliday reels were manufactured by Zangi in Torino, Italy, and were available from 1961 to 1964.<sup>2</sup> Zangi made a number of different reels for various American distributors.

We were surprised to find that the Ted Williams bailless spinning reels models 350, 450, and 550, as well as the left-handed versions of each, were marked with Small's patent number 2,879,954, the basis for the Holliday reels. The reels were made for Sears. The pickup device on the Williams reels is an improvement of the Holliday slots, in that a curved,



Figure 7. A Ted Williams No. 451 (left-handed) reel marked with Small's Holliday patent number. The Holliday line pickup is merely a tapered slot.

tapered, immobilized shaft guides the incoming line toward a roller at its proximal end at the edge of the spool cup.

Small's signature reel, the Cormorant, like the Holliday, suffered a lingering death. A 1957 catalog published by the Horrocks-Ibbotson Co., of Utica, N.Y., shows an unusual closed-face spinning reel called the "Aristocast" No. 1915B. Although the reel resembles an ordinary, contemporary closed-face spinning reel with a hole in the rear cover to permit thumb control, it is far from ordinary. Removal of the rear cover exposes what is essentially a small version of the Cormorant mounted on the central spindle of the reel. The line pickup consists of a pivoting hook



Figure 8. The Horrocks-Ibbotson "Aristocast" reel.



Figure 9. The Aristocast with its rear cover removed to show the Cormorant-like mechanism inside. The line enters the hollow central shaft at the front of the reel, exits the shaft at the rear, and turns forward to be wound onto the spool.

that swings outward to grab the line as the reel is cranked. One example of the Aristocast that we have examined has the numbers of Small's two Cormorant-related patents stamped under the foot.

A No. 1915 "Contest" was probably the first version of the reel, before it was slightly redesigned to become the No. 1915B. The Aristocast was available for a year or two before H-I redesigned it again and marketed it as the "HI-Thum" No. 1916. Although the "guts" remained the same, the new design was more attractive and, perhaps, more "mainstream" than that of the Aristocast. The



Figure 10. The H-I "HI-Thum" reel, a redesigned Aristocast.



Figure 11. The dual-function H-I "Defiance" reel. (Left) Ready for mounting under a spinning rod, with the line exiting from the spool through a central tube. (Center) The reel with both caps removed. The spool and line pickup, based on Small's inventions, are similar to those in the earlier H-I models. (Right) The other end of the reel. The line can be fed from this end for spin-casting from a casting rod. The large button brakes the spool. The foot is visible in extended (left) and retracted positions.

serendipitous finding of two different labels on a HI-Thum box, one glued over the other, suggests that the company changed the name of the newly designed No. 1916 at the last minute. H-I's third version of its "Cormorant-in-a-Cup" was available in 1959 and 1960.

H-I, which probably had bought the patent rights from Small, just wouldn't quit. During the early 1960s, the company made the No. 1900 "Defiance," an odd spincast reel that could be mounted above or, reversed, below the rod. Even the foot length was adjustable. Inside, the spool and line-flow route were similar to those in the earlier H-I reels and were



Figure 12. A prototype reel based on Small's patent, made by Penn Fishing Tackle Mfg. Co. (Photo courtesy of Laurie Bingham)

obviously adaptations of Small's Cormorant patents. The company added years to the longevity of the Cormorant's usefulness.

Two other Small patents have been noted. A patent of June 23, 1964 (no. 3,138,344), describes another sleek, open-faced spinning reel whose line pickup, like that on the Holliday reels, is a tapered slot in the edge of the cup, or flyer. In addition, the extent to which the cup covers the spool is adjustable. Penn Fishing Tackle Manufacturing Co., Philadelphia, Pa., is known to have produced at least two prototypes based on Small's design. Herbert Henze, Penn's retired ex-President, indicated that the reels never went into production.

Although the features described in Small's 1964 patent apparently were not used in any marketed American reels, they were adopted for at least one Japanese spinning reel. The reel's line pickup and adjustable spool cup are similar to those on the Penn prototypes.

Small's patent of January 17, 1967 (no. 3,298,629), describes a closed-face/open-faced hybrid spinning reel. Although supported upright on top of the rod and operated by a thumb button, like an ordinary spincast reel, the reel is open-faced. The line pickup consists of a notch-edged cup like those often found in less-expensive closed-face reels. Although we are not aware of any marketed models of the reel, one of us (R.H.) has seen such a reel in an old Gadabout Gaddis video clip. There was no way to tell



Figure 13. A Japanese reel with a Small-inspired line pickup and an adjustable cup.

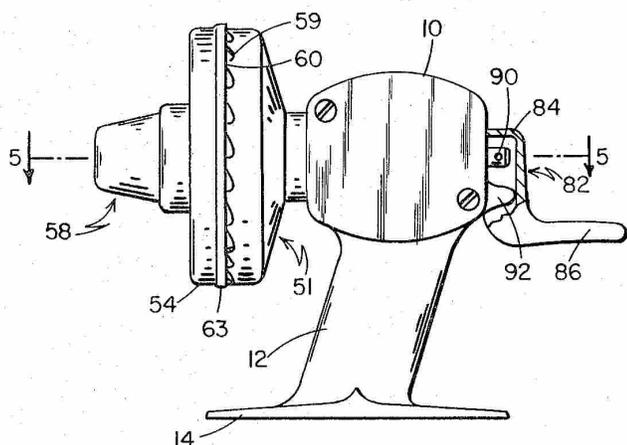


Figure 14. A drawing from Small's 1967 "hybrid" reel patent.

if the reel was a commercial product or merely a prototype being tested. However, there is also a seldom-seen, Japanese-made reel that apparently incorporates Small's invention. We like to think that the Japanese makers acquired the rights to Small's reels legitimately.

Although none of Edward F. Small's spinning reels seems to have been a blockbuster product, he achieved a remarkable record in having his reels produced and sold by at least four different companies. Small deserves our gratitude for having given us several of the more interesting spinning reels in our collections.



Figure 15. A pushbutton reel with a notch-edged spool cup. The reel was made in Japan by an as-yet-unknown company.

### Notes

1. *Newton Graphic*, Jan. 10, 1936, page 1
2. Wright, Ben, *The Wright Price Guide for the Reel Man*. Livonia, N.Y.: MMY Compilations, 1999, page 34

### Acknowledgements

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