

cone pulley, a vibratory thread-guiding lever operatively engaging the cam on said secondary shaft, and a belt connection between the cone pulleys on said shafts, whereby the speed of said secondary shaft can be varied at will, substantially as and for the purposes described."

This statement seems to be sufficiently comprehensive to embrace either equal or unequal conical pulleys. In view of the Spach and Hargraves patents, it would be unnecessary to specify that the relative speed relations could be varied by unequal pulleys, for that was already old. In this abandoned application reference is also made to the method of making cops of varying width, and to winding the threads upon a tube in uniform layers. The issue of infringement herein may be most directly presented by a comparison of the confessedly prior first Merrick 1890 machine with the second Merrick 1890 machine, the prior use of which is denied by complainant. In the former, by the use of a belt at the center of the equal pulleys, a half-wind cop is produced. Defendant contends that the adjusting devices of the first Merrick 1890 machine are so constructed that by shifting the belt a V wind may be produced thereon. This the complainant denies. I have not been able to satisfactorily determine this question. In the second Merrick 1890 machine the cone pulleys are of unequal size, thus providing a speed relationship which makes the V wind between the ends of the cop. This is the sole material difference in the construction and resultant operation of the two machines. It may be assumed that this modification was subsequent to the alleged Wardwell invention. It is proved that it made what is known as the "Wardwell cop." Whether the V wind, crossing intermediate the ends, was an essential feature of Wardwell's invention is very doubtful. He illustrated the half wind in his drawings. The term "V wind" is not found in any of the patents. Such crossing is mentioned only once in the three specifications. Most of the claims cover only the crossings at the end of the cop, and no reference is made to the V wind in the expert testimony in chief; and in his later patent, No. 533,934, Wardwell himself, in disclosing certain improvements on his alleged inventions already patented, illustrates and describes, not the V wind or full wind, but a wind of quarter turns, thus forcibly suggesting that his conception of his invention was not in the length, but in the character, of the spirals. It may be further assumed that it would have involved invention to thus change the size and resultant operation of the pulleys, if such change had not been in the prior art. But in the Hargraves patent, already considered, are found such pulleys used to produce said V wind upon a flat card. The considerations already suggested show that, if Wardwell's fourth claim could be so construed as to embrace all means for imparting progressive rotary movement to the cop at each rotation, it would be void by reason of lack of patentable novelty. If so construed as to include only the device described in the specification, it is not infringed.

If it be conceded, on behalf of complainant, that the proof of the alleged Morrison use is insufficient; that the date of the Morrison second machine, which contains the Wardwell invention, is not proved beyond a reasonable doubt; that the abandoned application of Green failed to describe how the variation of speeds included in the first

claim was to be accomplished, and failed to show a mode of forming cops of any desired width by varying the throw of the guide lever; that the Crescent and Merrick 1890 cops were irregular in their first layers because of slippage; that the evidence as to the Wardwell Columbian Exposition cops is immaterial; that the first Merrick 1890 machine, with equal cones, could not be commercially operated so as to produce the Wardwell cop; and that the priority of the second Merrick 1890 machine has not been conclusively shown, and, as stated by complainant's counsel that, "if anything is clear under all these patents it is that they are drawn to monopolize a cop, a method and a machine involving layers of winding uniform throughout from the innermost to the outermost, and as to every characteristic except size. It is equally clear that these results were set forth in the specification, and illustrated in the drawings as due to the laying of a helix substantially more than a half turn; or, in other words, substantially more than half way around a cop, and, hence, of such a character that, when reversed, there would be a crossing of the thread and a tying down of the helixes intermediate the ends of the cop,"—the issue between the parties would be practically embraced in the following statements in the closing brief of complainant's counsel:

"Defendant's contention that the substitution of unequal cones bearing a certain relation to each other, for equal cones in 'Defendant's Exhibit Merrick 1890 Machine' would have resulted in the production of a cop of the one wind or V wind type, has already been discussed. If no other change had been necessary for a successful machine, that would have been sufficient to confer patentability, for only the eighth turn of an adjusting screw distinguished the Rice telephone from Bell's, and yet Rice's was held to be absolutely immaterial. The suggestion that the unequal cones were found in Hargraves' patent, No. 245,373, * * * is immaterial, because in the Hargraves patent they were in a different combination, as will be seen from the discussion of that patent in our original brief."

That the substitution of unequal cones does produce the Wardwell cop is proved. Such unequal cones, however, were already known and used for an analogous purpose in the art of winding spools.

Assuming, further, the correctness of complainant's contention as to the V wind, and the material difference between the Wardwell cop and the earlier Merrick cop is in the intermediate crossings of the threads. The angle required to avoid slippage is a mere matter of mechanical experiment and adjustment. The fundamental law of the operation of the two machines is the provision of means for definite speed relations between the tube shaft and guide shaft, and for such changes therein "as to allow one to gain or lose on the other at each revolution by as much as the thickness of the threads to be wound." In order to extend the operation of this fundamental law to a V wind crossing intermediate the ends, Wardwell devised the special means for securing the increment of motion already explained, while defendant, or Merrick, applied the unequal cone pulleys of the prior art. The conclusion reached upon the whole case is, therefore, that the defendant does not infringe the first, second, and third claims of the machine patent, in suit, No. 480,157, because the defendant's device neither contains the combination of elements nor uses the second source of motion specifically claimed therein, and that it does not

infringe said fourth claim, because, in view of the state of the art, said claim cannot be sustained if so construed as to embrace unequal cone pulleys as an equivalent of the means therein claimed.

The foregoing discussion is relevant to the consideration of the other patents in suit. The characteristics of the patented cop have already been discussed. Its utility and commercial success and defendant's infringement are sufficiently proved.

In addition to the defense of lack of patentable novelty in view of the art, already considered, defendant further claims anticipation as matter of law by reason of the prior process patent and anticipation in fact by reason of certain museum exhibits. It is clear that the patented cop can be produced only by the patented method, and that the patented method cannot be followed without producing the patented cop. It is not necessary to determine the effect either of a prior patent for a product, or of a prior patent for a subsidiary improvement upon a later patent for a broad generic invention. In this case there was but a single invention involved, namely, the method of laying threads on a core in such relations to each other that a certain result is produced. It clearly falls within the first principle stated in *Underwood v. Gerber*, 37 Fed. 682, and affirmed in numerous later decisions. Here, as in that case, there was no invention in the later patent in view of the earlier patent. There it was held, as it must be here, that cases where the later patent was granted for an improvement upon the earlier one have no application. The defendant has introduced four rope or cord cops which correspond precisely in appearance with the patented cop. Two of these cops have been publicly exhibited in the National Museum at the city of Washington since 1884. The other two cops were similarly accessible to the public in the American Museum of National History at New York for more than two years prior to January 1, 1891. It is proved that all of these cops were known to various persons in the United States long prior to the patent in suit. The complainant has attempted to meet this evidence by proof that these rolls were made in the Fiji Islands, that they were used for decorative purposes at the museum, that the whole of said rolls could not be seen by the general public, and that they were neither sold nor used in the United States. I do not see how any of these facts, if admitted, militate against the proof that they were in the United States and known to persons other than the patentee in the United States prior to the date of the alleged invention. They were on public exhibition, where they could have been examined by visitors at any time. It is true that it does not appear, and cannot be certainly determined without further examination, whether the interior coils are wound in the same manner as the exterior ones. It may therefore be said that without such proof the museum cops do not anticipate the patented cop. But this evidence only serves to shift the defense from anticipation to a denial of patentable novelty, at least so far as the cop patent is concerned. Whether the process of winding was the same is immaterial in this connection. The completed product is identical in appearance, and such of said completed product as was known and open to inspection

shows every element of the cop patent precisely as claimed in the first, second, and third claims. In view of the utility of the patented cop, the manifest advantages resulting from its construction, and its success in the market, it may be assumed that Wardwell invented it. But "the statutes authorize the granting of patents only for such inventions as have not been known or used by others in this country, and not patented or described in any printed publication in this or any foreign country, before the applicant's embodiment of his own conception. It may be a hardship to meritorious inventors, who, at the expenditure of much time and thought, have hit upon some ingenious combination of mechanical devices, which, for aught they know, is entirely novel, to find that in some remote time and place some one else, of whom they never heard, has published to the world in a patent or a printed publication a full description of the very combination over which they have been puzzling, but in such cases the act none the less refuses them a patent." *New Departure Bell Co. v. Bevin Bros. Manuf'g Co.*, 19 C. C. A. 534, 73 Fed. 469. And because the expert testimony satisfactorily proves that the parts of the museum cops which are in suit so fully show their construction that any mechanic ordinarily skilled in the art could make the patented cops therefrom without invention, and because they appear to be, and would more naturally be, uniform throughout, I am constrained to find, whether they are or are not thus uniform, that there could be no creative conception and no patentable ingenuity or invention in a cop made up of layers arranged alike throughout in the pattern disclosed by the museum cops. It is significant in this connection that in the 123 pages of rebuttal testimony of the learned and skillful expert for complainant, Charles E. Foster, he nowhere denies the testimony of defendant's expert that a person skilled in the art could have supplied any supposed omission or arranged any supposed variations in the museum cops so as to make the cops of the patent. This patent is void by reason of lack of patentable novelty. In view of these circumstances, the additional defense against the process patent No. 480,158 on the ground that it covers merely the function of a machine, will not be discussed. The conclusion reached is that, in view of the state of the prior art, there was no patentable novelty in said process. Let a decree be entered dismissing the bill.