



**United States Copyright Office**

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**Via first class mail and email**

Ali Fayad  
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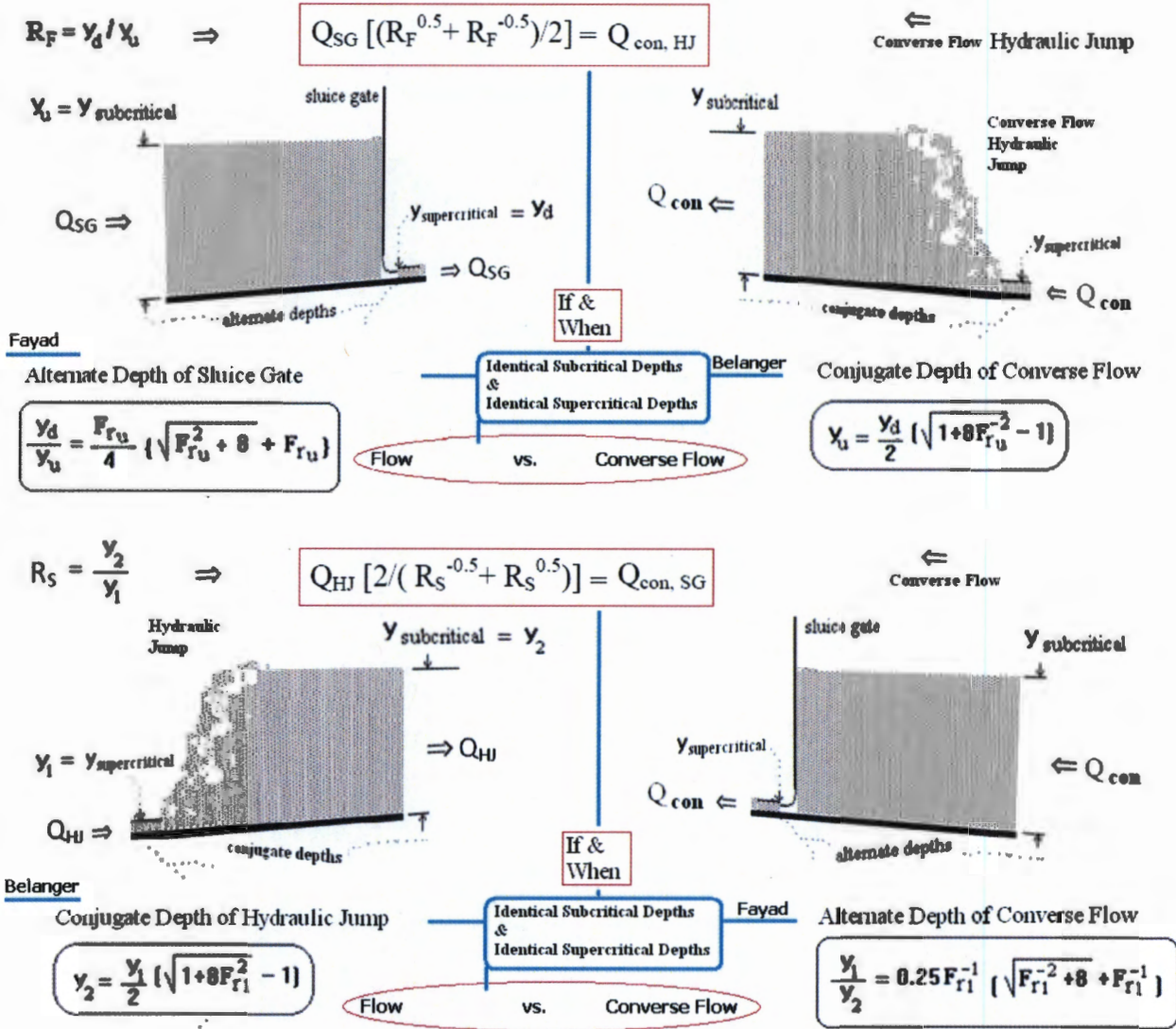
**Re: Second Request for Reconsideration for Refusal to Register Converse Flow Depths;  
Correspondence ID: 1-1SJCT3W (Original Correspondence ID: 1-1E053EA); SR1-  
1097149621**

Dear Mr. Fayad:

The Review Board of the United States Copyright Office (“Board”) has considered your second request for reconsideration of the Registration Program’s refusal to register a two-dimensional art claim in the works titled “Converse Flow Depths” (“Works”). After reviewing the application, deposit copy, and relevant correspondence, along with the arguments in the second request for reconsideration, the Board affirms the Registration Program’s denial of registration.

**I. DESCRIPTION OF THE WORKS**

The Works are JPEG images from the website of Ali Fayad that include mathematical formulas, text, and two-dimensional illustrations of two water-flow phenomena: a “hydraulic jump” and a “sluice gate.” The two JPEG images include a total of four two-dimensional graphs; two bear the name “Fayad” and the other two bear the name “Belanger.” The works, as described by Fayad in his application, “caption mathematical relationships hitherto unknown to the engineering and hydraulics community.” Reproductions of the Works are set forth below.



## II. ADMINISTRATIVE RECORD

On December 24, 2013, Fayad filed an application to register a copyright claim in the Works. In a January 22, 2016 letter, a Copyright Office registration specialist refused to register the claim, finding that it lacks originality “[b]ecause it contains only material predetermined by functional considerations.” Letter from Beth Garner, Registration Specialist, to Ali Fayad (January 22, 2016).

In a letter dated April 19, 2016, Fayad requested that the Office reconsider its initial refusal to register the Works. Letter from Ali S. Fayad to U.S. Copyright Office (April 19, 2016) (“First Request”). After reviewing the Works in light of the points raised in the First Request,

the Office re-evaluated the claims and again concluded that the Works were not copyrightable because the Works are “a graphic and alpha-numeric depiction of mathematical/engineering formulas.” Letter from Stephanie Mason, Attorney-Advisor, to Ali Fayad, at 2 (August 12, 2016).

In a letter dated November 11, 2016, Fayad requested that the Office reconsider for a second time its refusal to register the Works. Letter from Ali S. Fayad, to U.S. Copyright Office (November 11, 2016) (“Second Request”). Fayad argued that the images qualify as two-dimensional pictorial works – “an artist’s rendering of water-flow phenomena” that are “capable of existing independently of the utilitarian aspects of the ‘Converse Flow Depths.’” *Id.* at 1–2. In the Second Request, Fayad resubmitted the images from the application, but redacted from each image the formulas illustrated by the graphs. Fayad argued that “Copyright Reviewer’s concern to guard against granting copyright to a mere depiction of a formula becomes a moot point now that formulas have been redacted.” *Id.* at 4.

### III. DISCUSSION

#### A. *The Legal Framework*

##### 1) *Distinction Between Ideas and Expression*

Section 102(b) of the Copyright Act provides that copyright protection for expressive works does not extend to “any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.” 17 U.S.C. § 102(b). Section 102(b) codifies the longstanding principle, known as the idea-expression dichotomy, that copyright law protects the original expression of ideas, but not the underlying ideas themselves. The Supreme Court in 1879 held that the copyright in a book describing a bookkeeping system, with blank forms and ruled lines and headings, did not give the copyright owner the right to prevent others from using the book-keeping system described nor “the exclusive right to make, sell, and use account-books prepared upon the plan set forth in such book.” *Baker v. Selden*, 101 U.S. 99, 102–04 (1879).

“Mathematical principles, formulas, algorithms, or equations” are ineligible for copyright protection under section 102(b). *See* COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 313.3(A) (3d ed. 2014) (“COMPENDIUM (THIRD)”). Though the Office is permitted to register a sufficiently original artistic description, explanation, or illustration of an idea, procedure, process, system, method of operation, concept, principle, or discovery, *see* H.R. Rep. No. 94–1476, at 56 (1976), “the registration would be limited to the copyrightable literary, musical, graphic, or artistic aspects of the work . . .” COMPENDIUM (THIRD) § 313.3(A). This principle is manifested in the Office’s regulations, which bar copyright protection for “[i]deas, plans, methods, systems, or devices, as distinguished from the particular manner in which they are expressed or described in a writing.” 37 C.F.R. § 202.1(b). Originality springs from independent creation, not from discovering a yet-unknown mathematical principle. *See Feist Publ’ns, Inc. v. Rural Tel. Serv.*

*Co.*, 499 U.S. 340, 347 (1991) (“[O]ne who discovers a fact is not its maker or originator. The discoverer merely finds and records.”).

Copyright’s merger doctrine, which states that idea and expression merge together when the expression cannot be separated from the idea, is a closely related principle that bars copyrightability of certain works. *See Baker*, 101 U.S. at 103 (explaining that if the “art” that a book “teaches cannot be used without employing the methods and diagrams used to illustrate the book, or such as are similar to them, such methods and diagrams are to be considered as necessary incidents to the art, and given therewith to the public”); *CCC Info. Servs., Inc. v. Maclean Hunter Market Reports, Inc.*, 44 F.3d 61, 68 (2d Cir. 1994) (“[W]hen the expression is essential to the statement of the idea, the expression also will be unprotected, so as to insure free public access to the discussion of the idea.”). For example, in *Ho v. Taflove*, the court rejected plaintiffs’ argument that its equations, figures, and text were the creative expression of a scientific phenomenon “just as Mickey Mouse is a particular expression of a mouse.” *Ho v. Taflove*, 648 F.3d 489, 494 (7th Cir. 2011). As the court explained, unlike Mickey Mouse, equations, formulas, and their illustrations “mimic[] reality,” *i.e.*, the underlying scientific phenomena. *Id.* Thus, “equations and figures are ‘required by’ the [phenomena] and as such, are not subject to copyright.” *Id.* at 499 (internal citations omitted).

## 2) Originality

A work may be registered if it qualifies as an “original work[] of authorship fixed in any tangible medium of expression.” 17 U.S.C. § 102(a). In this context, the term “original” consists of two components: independent creation and sufficient creativity. *See Feist*, 499 U.S. at 345. First, the work must have been independently created by the author, *i.e.*, not copied from another work. *Id.* Second, the work must possess sufficient creativity. *Id.* Only a modicum of creativity is necessary, but the Supreme Court has ruled that some works (such as the alphabetized telephone directory at issue in *Feist*) fail to meet even this low threshold. *Id.* The *Feist* Court observed that “[a]s a constitutional matter, copyright protects only those constituent elements of a work that possess more than a *de minimis* quantum of creativity.” *Id.* at 363. It further found that there can be no copyright in a work in which “the creative spark is utterly lacking or so trivial as to be virtually nonexistent.” *Id.* at 359.

The Office’s regulations implement the longstanding requirement of originality set forth in the Copyright Act and described in the *Feist* decision. *See, e.g.*, 37 C.F.R. § 202.1(d) (prohibiting registration of “[w]orks consisting entirely of information that is common property containing no original authorship, such as, for example: Standard calendars, height and weight charts, tape measures and rules, schedules of sporting events, and lists or tables taken from public documents or other common sources”). Some combinations of common or standard design elements may contain sufficient creativity with respect to how they are juxtaposed or arranged to support a copyright. Nevertheless, not every combination or arrangement will be sufficient to meet this test. *See Feist*, 499 U.S. at 358 (finding that the Copyright Act “implies that some ‘ways’ [of selecting, coordinating, or arranging uncopyrightable material] will trigger

copyright, but that others will not”). A determination of copyrightability in the combination of standard design elements depends on whether the selection, coordination, or arrangement is done in such a way as to result in copyrightable authorship. *Id.*; see also *Atari Games Corp. v. Oman*, 888 F.2d 878 (D.C. Cir. 1989).

A mere simplistic arrangement of non-protectable elements does not demonstrate the level of creativity necessary to warrant protection. For example, the United States District Court for the Southern District of New York upheld the Copyright Office’s refusal to register simple designs consisting of two linked letter “C” shapes “facing each other in a mirrored relationship” and two unlinked letter “C” shapes “in a mirrored relationship and positioned perpendicular to the linked elements.” *Coach, Inc. v. Peters*, 386 F. Supp. 2d 495, 496 (S.D.N.Y. 2005). Likewise, the Ninth Circuit has held that a glass sculpture of a jellyfish consisting of clear glass, an oblong shroud, bright colors, vertical orientation, and the stereotypical jellyfish form did not merit copyright protection. See *Satava v. Lowry*, 323 F.3d 805, 811 (9th Cir. 2003). The language in *Satava* is particularly instructive:

It is true, of course, that a *combination* of unprotectable elements may qualify for copyright protection. But it is not true that *any* combination of unprotectable elements automatically qualifies for copyright protection. Our case law suggests, and we hold today, that a combination of unprotectable elements is eligible for copyright protection only if those elements are numerous enough and their selection and arrangement original enough that their combination constitutes an original work of authorship.

*Id.* (internal citations omitted).

### ***B. Analysis of the Works***

After carefully examining the Works and applying the legal standards discussed above, the Board finds that the Works lack originality and, moreover, merge with the ideas they express. Thus, the Works do not contain the authorship necessary to sustain a claim for copyright.

To begin, the Works do not satisfy the “*de minimis* quantum of creativity” required. *Feist*, 499 U.S. at 363. As text, formulas, equations, and illustrations that uncreatively describe mathematical principles, the Works are not entitled to copyright protection. See 17 U.S.C. § 102(b); *CCC Info. Servs., Inc.*, 44 F.3d at 68. Fayad himself describes the Works in his application as “caption[ing] mathematical relationships hitherto unknown.” Fayad thus effectively concedes that mathematical principles set the terms for the illustrations – that is “the expression is essential to the statement of the idea.” *Id.* Additionally, Fayad has provided no evidence that the converse flow depths “could be expressed by equations and figures other than those used . . . .” *Ho*, 648 F.3d at 499. Thus, the Works sought to be registered by Fayad fall under the statutory prohibition on protection of “any idea, procedure, process, system, method of operation, concept, principle, or discovery,” 17 U.S.C. § 102(b), a category under which the

*Compendium* explicitly includes “[m]athematical principles, formulas, algorithms, or equations.” COMPENDIUM (THIRD) § 313.3(A).

Simply redacting the formulas from the graphics – as Fayad did in the Second Request but not in the deposit – does not, as Fayad claims, make the graphics based on mathematical formulas a “moot point.” Second Request at 4. The Board must base its decisions only on the works as deposited. *See* COMPENDIUM (THIRD) § 1704.2.

Moreover, any claim that the two-dimensional graphics are copyrightable without the formulas would still fail because authorship would be *de minimis*. The *Compendium of U.S. Copyright Office Practices* makes clear that any copyright related to the Works would only exist for the “literary, musical, graphic, or artistic aspects of the work.” COMPENDIUM (THIRD) § 313.3(A). In the case of the Works, that would have to be the arrangement of the text, formulas, equations, and graphical illustrations of the mathematical principle. But these elements of the Works are not registrable for two reasons. First, as discussed above, Fayad concedes that the illustrations are entirely determined by the uncopyrightable mathematical equations, and thus under the merger doctrine cannot be independently protected. *See Ho*, 648 F.3d at 499. Second, the text and illustrations, even considering them apart from the mathematical equations, consist only of brief descriptive labels and two graphs on an x-and-y axis, which neither separately nor together rise above *de minimis* creativity. *See Feist*, 499 U.S. at 362 (barring copyright protection for works that are “so mechanical or routine as to require no creativity whatsoever”).

#### IV. CONCLUSION

For the reasons stated herein, the Review Board of the United States Copyright Office affirms the refusal to register the copyright claim in the Work. Pursuant to 37 C.F.R. § 202.5(g), this decision constitutes final agency action in this matter.

BY:



Chris Weston

Copyright Office Review Board